FLIGHT

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1931

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Dec. 4. London Ae.C. Annual Dinner and Dance, at Park Lane Hotel.
Dec. 4. Hampshire Ae.C. Ball at Portsmouth.
Dec. 4. No. 3 Sqdn. R.A.F. Reunion Dinner, at Mayfair Hotel, W.
Dec. 4. A.I.D. Northern Office Dinner at Sheffield.
Dec. 4. Yorks Ae.C. Annual Ball.
Dec. 7. "Diesel Engines," Lecture by H. R. Ricardo, before R.S. Arts.
Dec. 9. R. Ae.C. Schneider Banquet at Claridge's.
Dec. 10. "Air Flow—Demonstrations on the Screen by Means of Smoke," Lecture by W. S. Farren, before R.Ae.S.
Dec. 11. Rugby: R.A.F. Final Trial, at Uxbridge.
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Mar. 23. "High-Speed Flying," Lecture by Sqd.-Ldr. A. H. Orlebar, before R.U.S.I.
Mar. 26. Rugby: Army *v.* R.A.F., at Twickenham.
Apl. 13. "The North-West Frontier of India," Lecture by Maj.-Gen. S. F. Muspratt, before R.U.S.I.
June 25. R.A.F. Display, Hendon.

EDITORIAL COMMENT

Bert Hinkler's Latest

WE have always looked on Bert Hinkler as one of those admirable long-distance pilots whose flights have usually been demonstrations of the useful possibilities of the aeroplane, and especially of the small aeroplane. His non-stop flights from London to Turin and from Sydney to Bundaberg in an Avro "Baby," his flight to Riga in an "Avian," and above all his great flight to Australia in the same "Avian," were all models of what a demonstration flight ought to be. Risks were run in the course of all these flights, but, when one takes into account the great skill of Hinkler in caring for his machine and engine, and also as a pilot and navigator, one felt in all these flights that the odds were always on a safe and successful termination. He has been almost our *beau ideal* of what a pioneer long-distance pilot ought to be. Consequently we are shocked and pained to learn that he has sunk to the level of a trans-Atlantic flier. We must now write him down as a bold, bad, little pilot, who has risked, not merely his life, but also the fair reputation of the aeroplane, by taking a chance which staked more in the event of failure than it stood to gain in the event of success. We can do nothing else but praise him with faint damns. Had his previous record not been so very good, the damns would have been less faint.

Of Hinkler's powers of endurance so many proofs have been given that we are not in the least astonished at his having flown non-stop for 22 hours. We are not much surprised at the endurance of the "Gipsy III" engine for running for that number of hours. One of the best points about long flights is the proof which they afford of the reliability of modern aero engines, among which the "Gipsy III" has already earned a very high reputation. We only wish that this additional example of the merits of the engine and machine had been made on a route where possible failure would not have been visited with almost certainly fatal results.

One point about this flight is certainly fortunate. Hinkler is said to have been aiming for Dakar in Senegal. He had no wireless and he had to be his own navigator as well as the pilot of the "Puss

Moth." In the circumstances of flying across an ocean, when it is very difficult to check drift, he showed extraordinarily good navigation in reaching land about 100 miles away from his objective. Consequently he landed at Bathurst, the seaport and capital of the British colony of Gambia. In our last week's issue we published an aerial photograph of Bathurst. The people of Gambia have just been disappointed by not receiving a visit from the R.A.F. West African flight, which was obliged, by an outbreak of yellow fever in French Africa, to turn back from Nigeria to Egypt without visiting the Gold Coast, Sierra Leone, and Gambia. The disappointment of the airminded people of Gambia must have been considerably consoled by this unexpected visit of Hinkler.

As a record, there is nothing very much to say about this flight. It is actually the first crossing of the South Atlantic from West to East ; but there have been so many flights across that ocean in the other direction that there does not seem to be very much in the novelty of flying eastward. It is, we believe, the record non-stop flight of a " Puss Moth," but a " Puss Moth " just fails to come into the F.A.I. definition of a light aeroplane, and so this cannot be claimed as a record light aeroplane flight. The South Atlantic, by the way, has not acquired the deadly reputation of the North Atlantic among flying men. We can only find one instance of a machine being completely lost when attempting to fly across it. That was the Goliath in which Capt. de Saint Roman and Lieut. Mouneyres set off from Dakar on May 5, 1927, and of which nothing more was heard. Two machines of the Italian squadron which flew across to Brazil a year ago were destroyed, but they did not disappear from the ken of man. Everyone must be extremely glad that the South Atlantic has been as kind to Bert Hinkler as it has been to most other airmen. His many friends will give him a very warm welcome when he arrives back in England despite his having suffered some damage to his reputation as a pioneer of useful flights.

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Economy

Sir Philip Sassoon, Under-Secretary for Air, has stated in the House of Commons that, as a result of the recommendations of the Committee on National Expenditure, it is not practicable to proceed with the two experimental types of civil aircraft which formed the new programme for 1931, or with the amphibian type seaplane included in the programme of the previous year ; but that a large experimental flying boat, which was already on order, is being proceeded with, and that other proposals consistent with the need for curtailing expenditure to a minimum are under consideration.

The large flying boat which is being proceeded with must, of course, be the Vickers-Supermarine with six 825 h.p. Rolls-Royce engines. It is very good to learn that there is to be no interruption of the policy of making flying boats progressively larger and more powerful. We might, of course, have followed the policy of Dr. Dornier and made our experiment by means of one large jump into a size not previously attempted ; but we believe that the progressive method which has been adopted in Great Britain will yield better permanent results and probably at less cost. It is, however, interesting to speculate which are the two types with which it has been decided not to proceed. We turn for guidance to the latest report on the Progress of Civil Aviation.

Under the heading " Proposed " we find (1) Mail Carrier, (2) Aircraft for Operation from Restricted Spaces, (3) Amphibian Flying Boat, (4) Trans-Oceanic Flying Boat, and (5) Other Aircraft. Of these the amphibian was mentioned by Sir Philip as having been stopped for the time being, and we think we may take it for granted that no further steps will as yet be taken with the Trans-Oceanic boat, which had only reached the stage of a draft outline specification. The " Other Aircraft " included an air survey machine, a crop-dusting machine, a Polar transport machine, and a catapult seaplane for transferring mails from ocean liners. These were only contemplated and not provided for in the programme, and so we shall not hear any more of them for some time to come. It looks as if the other victim is to be the machine for operation from restricted spaces.

We may, we think, congratulate the Air Ministry on not having done any very serious harm to the advancement of aeronautics by the steps towards economy which it has taken. The ability to land in restricted spaces is a very desirable quality, and it would be pleasant to think that the Air Ministry was giving a helping hand towards the production of a suitable type. The movement in that direction will none the less go on. The energy with which the Autogiro company pursues its plans will by itself assure that. When we have tested out the six-engined Supermarine boat it will be ample time to proceed with a larger type of hull seaplane. Evidently we do not need to preach to the Air Ministry the lesson that it is no economy to refrain from a profitable investment. We have stopped airship research because experiment on those lines is immensely costly, and it is only a rich nation which can afford to indulge in it. The result of an advance in airships may be a great and wonderful prize, but that point has not been proved. Advance in the design of civil aeroplanes, both seaplane and landplane, does, we know, bring profits within a reasonable time. At least it brings nearer the time when air line companies will be able to operate without subsidies. We still need more good qualities in our civil aeroplanes, and so research and experimental building must continue. The lead which is now being given by the Air Ministry is as bold as the circumstances of the time permit.

Bristol Type 118 General Purposes Aircraft

IN countries all over the world there is a call for an aircraft of high performance, designed and equipped not only for a specialised purpose, but capable of carrying out with sound efficiency the many duties an aircraft may be required to perform. For some considerable time past the question has been one which has received the close attention of the "Bristol" design and development departments, and the Type 118 is the result.

Normally carrying a crew of two, a pilot and an observer—the latter also carrying out the duties of rear gunner, bomber and wireless operator — the machine can also carry, in addition, two stretcher cases, so that it can be used as an ambulance aircraft for the evacuation of sick and wounded, as well as for its active fighting functions. One stretcher case is accommodated in the bombing station, and the second on the top of the fuselage aft of the rear cockpit.

The machine is a two-seater (single-engined) tractor biplane, with staggered planes, the top plane having a larger span and chord than the lower. "Frise" ailerons are fitted to the top planes only. The tail-plane setting is adjustable. Shielded horn balances are incorporated in the elevators, and the rudder balance is shielded by the fin, which is offset. Brakes are fitted to the undercarriage, which is of the divided type. A Bristol "Jupiter" X.FA. or a Bristol "Mercury" engine is installed, driving a 12-ft. diameter two-bladed propeller.

A crew of two is normally carried: A pilot, and an observer who also carries out the duties of rear gunner, bomber and wireless operator. The pilot is seated just aft of the top centre section trailing edge, and the observer's cockpit is immediately behind the pilot's. With the seat folded and the floor pushed aft in slides, the observer can reach the bombing station through a "tunnel" beneath the pilot. This station is in the nose of the machine, immediately aft of the engine mounting. In addition to the crew, two "stretcher cases" may be carried, one in the bombing station and one on the top of the fuselage aft of the rear cockpit. A section of the fairing is made quickly detachable to accommodate the latter.

BRISTOL 118 G.P. AIRCRAFT
Bristol "Jupiter" X.FA. Engine

Principal Dimensions

Span top wings	40 ft. 8 in. (12,4 m.)
Span bottom wings	28 ft. 8 in. (8,74 m.)
Length over all	34 ft. 0 in. (10,36 m.)
Height (tail down)	12 ft. 0 in. (3,66 m.)

Weights

Empty	3,300 lb. (1 500 kg.)
Total loaded weight	5,200 lb. (2 360 kg.)

Performances

(With "Bristol" Jupiter X.FA. Engine)

Speed

At ground level	140 m.p.h. (225 km./h.)
,, 12,000 ft.	165 ,, (266 ,,)
,, 16,000 ,,	160 ,, (257 ,,)
,, 20,000 ,,	151 ,, (243 ,,)

Climb

(At 5,200 lb. weight)

To 10,000 ft. (3 050 m.)	10·6 minutes
,, 15,000 ,, (4 570 ,,)	16·5 ,,
,, 20,000 ,, (6 100 ,,)	22·1 ,,
Ceiling	25,600 ft. (7 800 m.)

Load Factors

(At 5,200 lb.)

C.P. forward	6
C.P. back	4·5
Terminal nose dive	1·5
Landing	4·5

Equipment

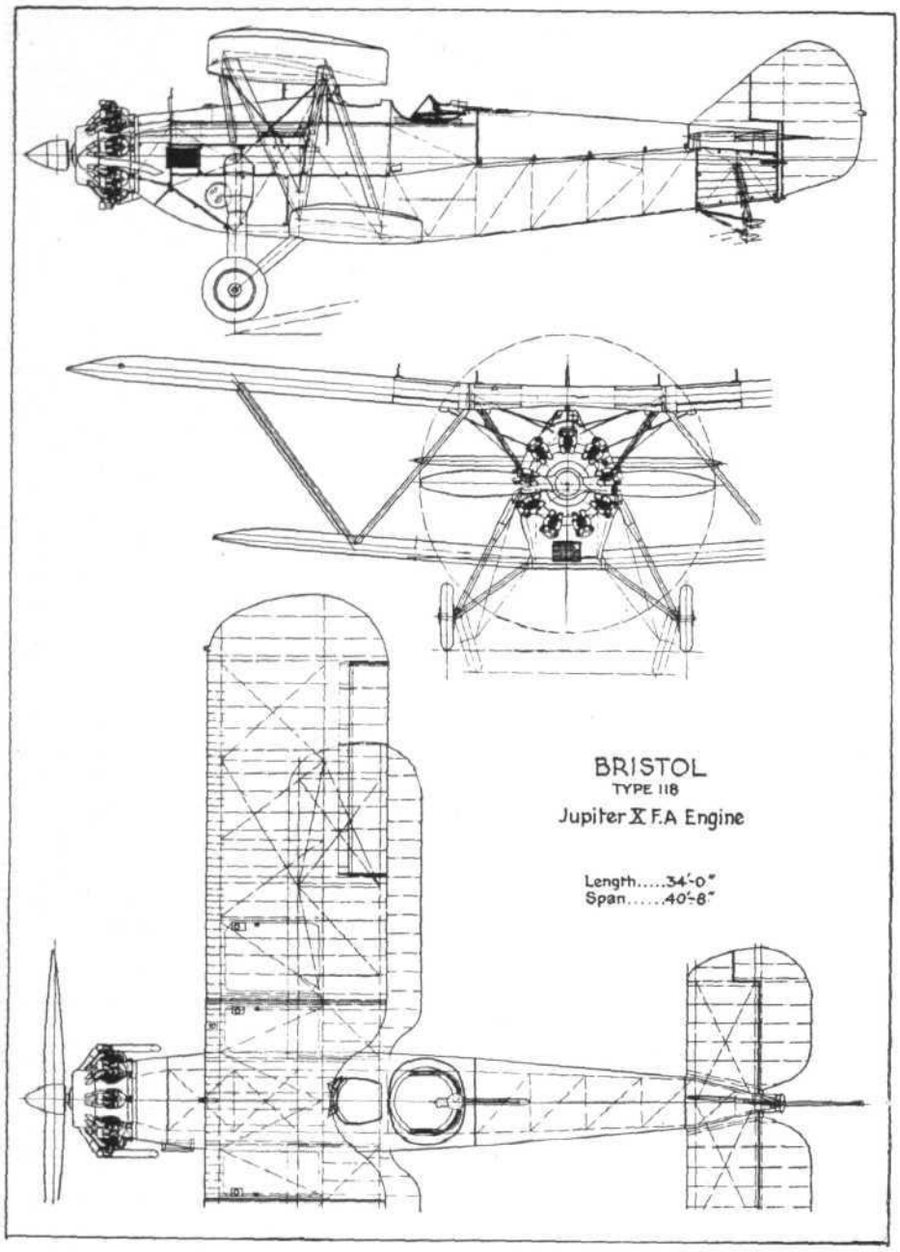
Guns.—One Vickers 0.303-in. gun on the port side is operated by the pilot, and provision is made for 600 rounds of ammunition. The gunner operates the Lewis 0.303-in. gun mounted on a balanced-type Scarff ring, with stowage for six double drums of ammunition.

Bombs.—Racks are provided on the bottom of the fuselage for carrying alternative loads of bombs, namely, (1) 16 of 20 lb., or (2) four of 112 lb., or (3) two of 230 lb. or 250 lb. In addition five practice bombs are carried in a crate beneath the fuselage. Both pilot and bomber are provided with salvo-selector release gears.

Camera.—Provision is made to carry a type P.24 camera on an adjustable and detachable mounting, immediately forward of the bombing station. This can be operated from the bombing station or by the pilot.

Wireless.—The "three-panel" system is provided for, and stowage arranged aft of the rear cockpit. The pilot

THE BRISTOL TYPE 118: *This side view gives a good idea of the general lines of the machine.*



THE BRISTOL TYPE 118: General Arrangement Drawings, to scale.

operates the radio-telegraph panel through remote controls, and the observer the continuous wave and interrupted continuous wave panels.

Structure

Airscrew.—A two-bladed wooden propeller of 12-ft. diameter and 10-ft. pitch.

Engine Cowling.—This is in the form of readily detachable panels, mounted on rigid steel tubular framing.

Exhaust System.—A special exhaust collector ring is fitted with two tail pipes.

Engine Mounting.—The engine is bolted to a forged and turned ring of angle section, attached to the fuselage by steel tube struts and stays. Taper bolts are used throughout, and the mounting is quickly detachable.

Fireproof Bulkhead.—A panel of $\frac{1}{8}$-in. thick asbestos between two sheets of 24 S.W.G. aluminium.

Fuselage.—Fore end: From aft of the engine mounting to rear of gunner's cockpit, built of round steel tubing bolted between flat high-tensile steel joint plates. Rear end: From aft of gunner's cockpit to front spar of tail plane, built of high-tensile steel strip sections riveted to flat high-tensile steel joint plates. Stern wedge: The rear end structure carrying fin, tail skid and rudder is of construction similar to that of the rear end. By removing four bolts this wedge may be quickly detached from the fuselage.

Undercarriage.—Divided type, each half consisting of a wheel (800 × 150), axle, radius rod, and oleo leg. A Vickers oleo pneumatic unit is incorporated in each oleo leg. Vickers hydraulic brakes are operated by a hand lever, and differential braking is obtained through a valve box operated by the rudder bar.

Tail Skid.—A telescope member, hinged to the fuselage at the top end, is restrained at the lower end by a "Vee" shaped radius rod. Rubber compression blocks provide the springing for this member, which is fitted at its lower end with a swivelling pan which can be quickly replaced.

Wings.—The top surface consists of a centre section and two detachable planes. The lower planes attach direct to the fuselage.

Top Centre Section.—Front spar built up of high-tensile steel strip. Rear spar of high-tensile steel tube. Ribs built of high-tensile steel channel sections, with "Warren" type bracing members. Drag bracing of tubing. The section is thinned down to improve pilot's view. Two emergency fuel tanks are housed in outer ends.

Wings, Upper and Lower.—Spars are built up of high-tensile steel strip. Ribs are built of high-tensile steel channel sections, with "Warren" type bracing. Drag

STRUT-BRACED: The Bristol Type 118 has a somewhat unusual arrangement of its wing bracing. The engine is a "Jupiter" Series X.FA.

bracing of high-tensile steel tubing. A main fuel tank is housed in the inner end of each top wing.

Centre Section Struts.—Of streamline section steel tubing braced by streamline wires.

Wing Struts.—Each "side" consists of an "N" incidence frame and one lift strut. The "N" struts are built up of high-tensile steel strip, with aluminium fairings, while the lift strut is built up of two separate high-tensile steel strip sections.

Ailerons.—These are of the "Frise" balanced type, and are fitted to top wings only.

Tail Plane.—This is of cantilever form (in one complete unit) attached to the fuselage at two points on front spar, about which it hinges. The rear spar is anchored through an adjustable screw jack. Both spars are of steel tubing, and the ribs are built up of high-tensile steel strip channel sections.

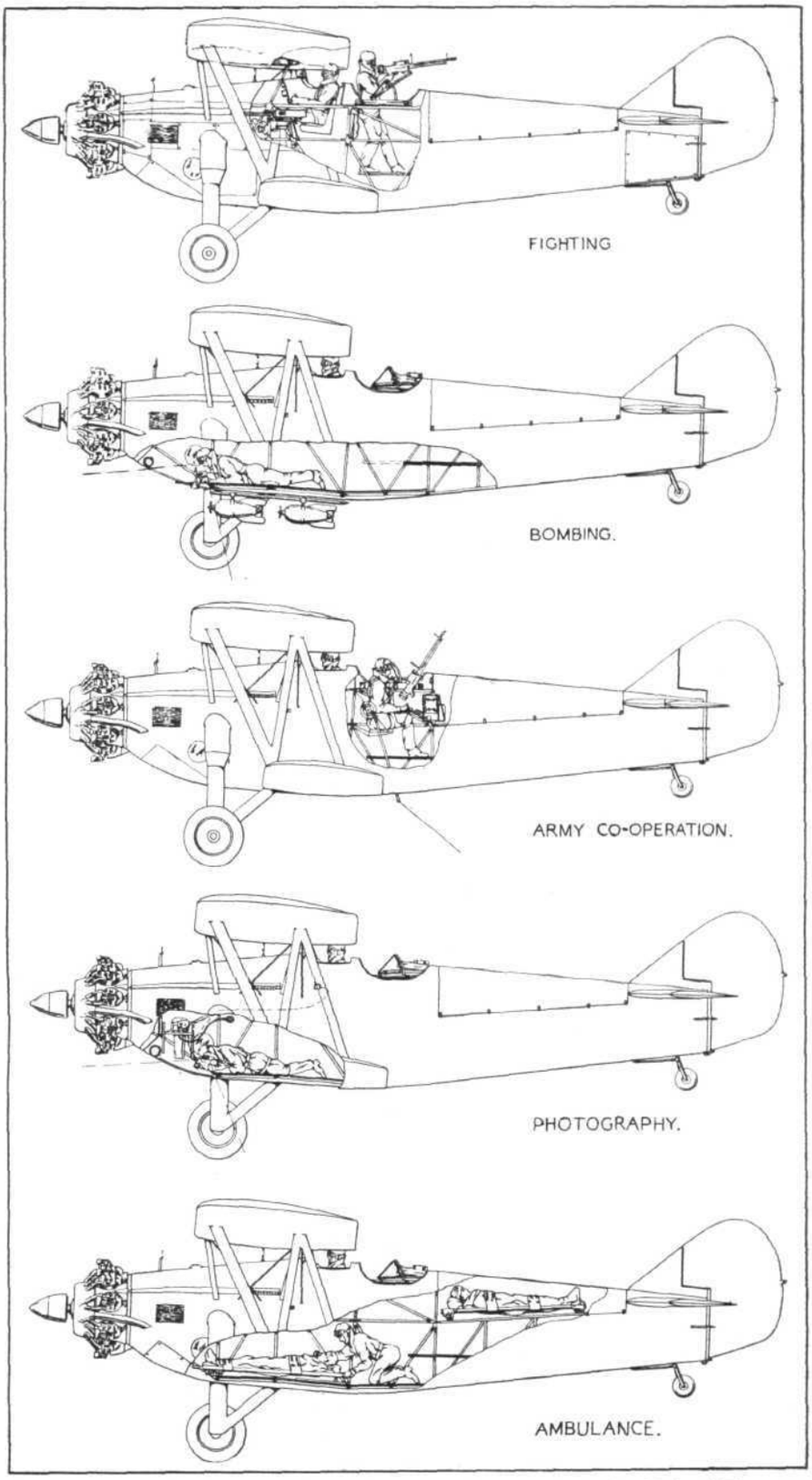
Elevators.—Each elevator is a separate unit, the two being bolted together at the inner ends of the spars. Horn balances are shielded over small angular movements by the tail plane.

Fin.—A cantilever structure of steel tube and duralumin. This is set over on the fuselage to counteract slip-stream effect. The fin is sufficiently thick to shield rudder balance over small angular movements.

Rudder.—Balanced type, with tubular rudder post and edging, and duralumin sheet ribs. Hinged at three points.

Petrol System.—Gravity. Normal capacity, 100 gallons. Total with emergency supply, 160 gallons. The normal supply is carried in two tanks of 50 gallons each, one in each inner end of top wings. The extra supply is carried in two tanks of 30 gallons each in the top centre section. All tanks are of tinned steel, are fitted with contents gauges, cocks (controlled from cockpit), and "hand-hole" sump, and are easily detachable. From each tank a "Monel" metal feed pipe leads to a manifold at the forward end of the fuselage. At the lower end of each pipe is another cock, under the control of the pilot. A single "Petroflex" pipe leads from manifold to filter, and another from filter to carburettor.

Oil System.—A tinned steel tank, holding 10 gallons, is mounted on the forward end of the fuselage. A combined cock and drain plug is fitted in the supply pipe to engine. The oil is returned to tank through a separate cooler mounted on the port side of the fuselage. This cooler consists of a series of oval section tubes, connected in parallel, protruding through the side covering of the fuselage. An adjustable spring-loaded valve by-passes the oil until a normal working temperature is reached.



GENERAL PURPOSES: These diagrams illustrate how the Bristol Type 118 came to be classed as a G.P. Aircraft.

Controls.—A standard type of control column is fitted for elevator and aileron control. The foot control has a 4-in. quick adjustment fore and aft, without altering cable lengths. A large diameter hand-wheel operates the tail adjustment. This is provided with an indicator. Engine control is by push-pull rods, except at the fire-proof bulkhead, where "Arens" control units are used.

Seating.—The pilot's seat is adjusted over a height of 4 in. by means of a lever on the starboard side, and is shaped to house the seat-type parachute. The gunner's seat faces aft, and can be folded up clear of the cockpit.

Guns.—The Vickers gun is fitted on the port side of the pilot's cockpit, on an adjustable mounting. The ammunition box, holding 600 rounds, can be filled in position, or quickly lowered into the bombing "tunnel." The Lewis gun is mounted on a balanced type Scarff ring, and pegs are provided for stowing six double drums of ammunition.

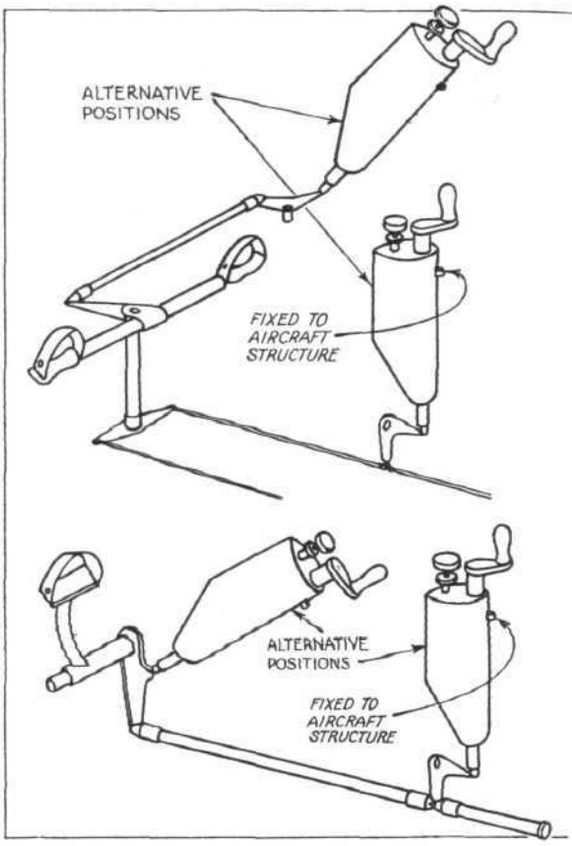
Westland Rudder Bias Gear

A Device which Relieves Pilot of Fatigue of Counteracting Turning Moment

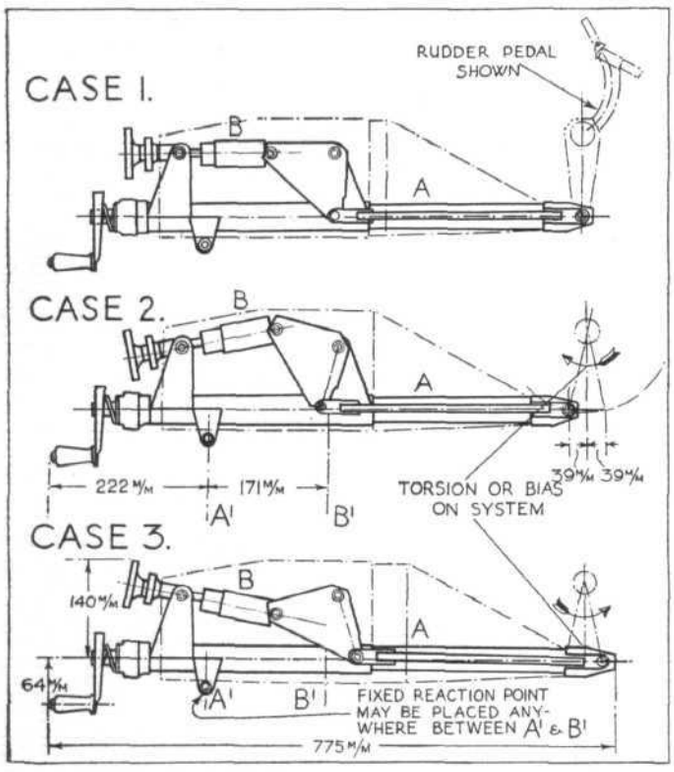
IN multi-engined aircraft it is necessary, when one of the outboard engines stops, or when its power falls off for any reason, for the pilot to apply a not inconsiderable force to his rudder bar in order to keep the machine from turning. Even in some single-engined types under certain conditions of loading and speed, it is necessary to apply rudder in one direction to keep the machine on its course. Obviously this quickly causes fatigue. When a simple spring-loading device is used for setting the rudder, the pilot can, of course, trim the machine to fly straight, but his rudder control becomes unsymmetrical because he is working with the spring in one direction and against it in the other.

To avoid this trouble the Westland Aircraft Works of Yeovil have produced a device called a Rudder Bias Gear, which enables the rudder to be set either to port or starboard without causing unsymmetrical loads on the rudder bar or pedals. The gear consists essentially of two springs in a telescopic tube arrangement, one spring being the primary and the other the secondary or relief spring. The gear is shown in the illustrations.

The primary spring is a helical spring adapted to operate either in tension or in compression. It is this spring which, through the medium of the telescopic tube, applies the load to the rudder bar.



SUGGESTIONS FOR ATTACHMENT: At the top the gear applied to a rudder bar and cable system, and below, an arrangement for rudder pedal and push-and-pull tube system.



WESTLAND RUDDER BIAS GEAR: Three positions, corresponding to normal, or all engines working, starboard engine off, and port engine off. For explanation see text.

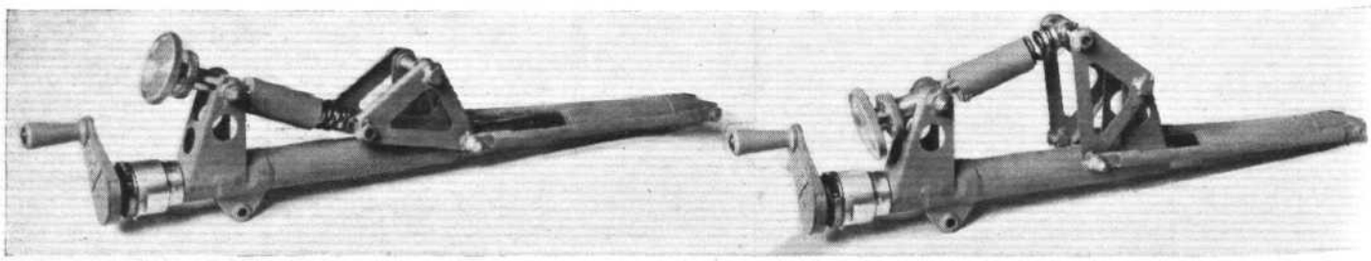
By means of a crank on the end of a threaded shaft the spring can be compressed or tensioned to the desired extent. The relief spring allows the restoring force to remain substantially constant irrespective of the amount of displacement, and is adjustable by a knurled knob to give "light" or "heavy" rudder according to the wishes of the pilot. The complete unit is 2 ft. 6 in. (76 cm.) long and weighs 9 lb. The rudder bias gear has been used on the Westland "Wessex" for a considerable time with good results, and is suitable without modifications to rudder systems in which the load at the end of a rudder bar lever $8\frac{1}{2}$ in. long does not exceed 50 lb.

One of our illustrations shows the rudder bias gear as applied to a three-engined aircraft. The illustration at the top shows the position under normal conditions, *i.e.*, with all three engines working. No load is applied to the bias spring A, and the effort required to compress or tension this spring is balanced by the initially compressed relief spring B.

The centre diagram corresponds to case 2 (starboard engine off). In this position spring A has been tensioned by rotating the handle anti-clockwise, which screws the nut back and thereby automatically putting on port rudder.

The lower diagram represents case 3 (port engine off), and shows spring A compressed by clockwise rotation of the handle, which screws the nut forward and thereby puts on starboard rudder.

In addition to its original use as a rudder bias gear, the Westland device can also be applied to a tail trimming gear, for either movable tailplane or for the elevator.



TWO VIEWS OF THE GEAR: On left in position corresponding to port engine off, and on right in that assumed for trimming when starboard engine is off.

The "Wobblemeter"

A New Device for measuring human fatigue

A NEW apparatus designed, among many other purposes, to determine the effect of flight fatigue on the equilibrium of aeroplane passengers and pilots, has been demonstrated in New York by the Pioneer Instrument Company, a division of the Bendix Corporation.

The apparatus is called the wobblemeter, and was developed by Dr. F. A. Moss, head of the department of psychology of George Washington University, with the co-operation of a research committee of the Society of Automotive Engineers, the Bureau of Standards and the laboratories of several manufacturing companies. The device has gone through extensive laboratory trials and tests in the field of aviation, although it may be applied in the department of motoring, psychology and psychistry.

Weighing about 14 lb. and measuring 15 by 12¾ by 9 in., the apparatus consists of two footrests fitted to a base in such a way that they are free to oscillate in a horizontal plane after the operating levers are released. The subject taking the test attempts to balance himself while standing on the footrests, the total amount of motion made in the attempt being recorded by two meters, one for fore and aft motion and the other for lateral motion. The count is not only qualitative but it is also quantitative, being in proportion to the degree of movement. The total amount of motion to reach and maintain equilibrium in a stated unit of time, usually one minute, will be an index of physical condition, that is, fatigue or lack of fatigue.

Test Procedure Simple.—If it is desired to establish the fatigue due to an aeroplane trip, the test procedure is as follows: Before the person enters the plane, his initial index of fatigue is established. Suppose it is 35 before a flight of 200 miles. After the flight the index of fatigue is again established on the wobblemeter, and has increased to 48. Obviously the ratio of the reading after the flight to the reading before the flight, as in this example, 48/35, will equal 1.37, giving the measure of the riding quality of the flight in question.

The lower the ratio the better the riding qualities of the flight, as, obviously, a person roughly shaken over a stretch of bad weather will be more fatigued than one who has enjoyed a smooth journey. Tests have shown that when subjected to the same fatiguing conditions, most people will have the same ratio of final reading to the initial reading, whether the initial reading be high or low.

The wobblemeter in preliminary tests has shown interesting differences in the human sense of balance. Studies have shown a sex difference in balance in favour of women, and a decrease of steadiness and equilibrium with age. The apparatus has also shown a diurnal change in equilibrium, the best average balance prevailing in a person around 2 p.m. It has been established that most normal male persons in an unfatigued state will register between 30 and 40 units per min.

Many Tests Possible.—Many tests are possible using the wobblemeter, although in aviation it has been specifically used to determine the effect of flight on the equilibrium of passengers and pilots. It is also being used in an experimental way to determine when a pilot is in sufficiently good physical condition to take a flight. For example, a pilot with a normal steadiness reading of 15 should probably not be allowed to take a plane up on a day on which his steadiness reading is up to 45. It is also proposed to use the instrument in connection with initial selection of people for training as aviators, the assumption being that those with poor equilibrium will never make good fliers, while those with good equiiibrium are worth training, provided their other qualifications are satisfactory.

(*Courtesy, Daily Express.*)

THE "WOBBLEMETER" TEST.—*Little Man:* **"Not quite as steady as you might be, Mac, but, as you seem to be the only pilot we've got handy, for goodness' sake let's get on with SOMETHING." Mr. Strube, always up-to-date, makes good use of the instrument described on this page, but an inspection of the aeroplane causes one to wonder why Strube does not make Mac "fly British."**

▣ ▣

"Comrades of the Royal Air Forces"

THE above Association, which has been in existence for about 18 months, has now fourteen branches at various centres in the United Kingdom. The First General Reunion Dinner, at which it is hoped the various branches will be strongly represented, has been arranged for Saturday, December 12, 1931, at 7 p.m., and will be held at Baltic House, Leadenhall Street, London, E.C.3. Amongst the guests will be Air Vice Marshal Sir Oliver Swann, K.C.B., C.B.E., and other distinguished officers. The string band of the Royal Air Force will play during the evening, by kind permission of the Air Council. Morning dress—or ordinary lounge suit—is the order for dress upon this occasion. Tickets, price 6s. 6d., may be obtained from Mr. W. Coen, Hon. Secretary, C.R.A.F., Eastchurch, Kent, or D. C. Crowson, Esq., 33, Coburg Road, London, S.E.5, or from any branch of the organisation.

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The Royal Air Force Display, 1932

THE Thirteenth Annual Display of Flying by the Royal Air Force will be held at Hendon on Saturday, June 25 next. As on previous occasions the gates will open at 10 a.m., flying commencing at noon and concluding about 5.30 p.m. Prices of admission will range from 2s. to 10s., with a limited number of boxes from £4 to £7. Further details will be announced later, and all information regarding the Display may be obtained from the Display Officer, R.A.F. Station, Hendon, London, N.W.9

Next Year's Paris Aero Show

THE managing committee of the Syndical Chamber of Aeronautical Industries has decided, in its last meeting, that the XIII Aeronautical Exhibition, organised by the Syndical Chamber, shall be held in the Grand Palais, Paris, in the course of November, 1932.

Bert Hinkler Flies The Atlantic

Brazil to Africa in a De Havilland "Puss Moth"

OUR "Great Little Man," Bert Hinkler, who in 1928 initiated the "on to Australia by light plane" campaign—which, it seems, is to become a serious rival to Charley's Aunt as a hardy annual—has once more established a noteworthy feat in the world of flying. He has succeeded in accomplishing the first solo flight from South America to Africa, and the first Atlantic crossing in a light plane.

It was typical of Bert Hinkler that his intention of making this flight was kept secret up to the last minute. When, however, last October Bert Hinkler made his record non-stop flight of 1,600 miles from New York to Jamaica, and later proceeded on towards Brazil, many felt that he had something "up his sleeve."

A snapshot taken at Trinidad of Bert Hinkler (centre) during his flight to Brazil. With him are, right, Mr. Michael Cipriani (the one and only "Moth" owner in Trinidad) and Mr. E. R. Lickfold.

While on his way to Brazil, Bert Hinkler met with a little adventure, which will, knowing Bert as we do, make good telling when next we meet him. When he landed at Fort Aleza, in the State of Caera, N. Brazil, he was arrested and his machine impounded—owing, it was stated, to his papers not being in order. However, the British Chargé d'Affaires at Rio de Janeiro intervened and secured his release, so Hinkler was able to proceed. We next hear of him having left Natal, Brazil, at 11.05 p.m. (G.M.T.) on November 25, en route for Dakar on the West Coast of Africa—a distance of about 2,000 miles. He did not arrive at Dakar when due there, and at first some anxiety was felt on his behalf.

Some time later, however, news came to hand that he had landed at Bathurst, Gambia, on the morning of November 26, having completed the journey across the Atlantic in 22 hours.

After a rest at Bathurst, Hinkler refuelled and flew to St. Louis, Senegal, on November 27. Next he flew on to Cape Juby and Port Etienne, arriving at Casablanca on November 29. Here he was warmly received by the French authorities, who awarded him the Moroccan Cross. Bert Hinkler decided to stay at Casablanca for a short time, in order that he might thoroughly overhaul his machine and engine. This accomplished he will proceed *via* Lisbon to England, where he is due next Saturday at Hanworth.

We need not, we think, comment further here upon this remarkable flight of Bert Hinkler's, as we refer to it in our Editorial columns, and it only remains for us to record that Lord Londonderry, Secretary of State for Air, sent a telegram of congratulations to Hinkler on his "achievement in making his flight and adding to the prestige of Australian airmen and British aircraft and engines." Finally, his "Puss Moth" machine, although fitted with a "Gipsy" engine of only 120 h.p., lubricated with Wakefield Castrol Oil, averaged 80 m.p.h. for 22 hours over nearly 2,000 miles of open sea, despite its heavy load of extra fuel.

BERT HINKLER'S "PUSS MOTH": A standard de Havilland product, with "Gipsy" engine, except for extra tanks and certain "Hinklerisations."

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Indian Air Force Wing

THE following message emanated from Delhi at the end of October:—The Secretary of State has accorded sanction to the formation of an Indian Air Force Wing of the Indian Technical and Followers Corps of the Royal Air Force in India. The Wing, like the rest of the Corps, will be maintained in India under the authority of the Governor-General in Council. The terms and conditions of service for the Indian Air Force Wing will be as follows: Enrolment will be confined to persons who have completed a full period of apprenticeship in workshops of State-managed railways in India. The maximum age limit for enrolment into all trades will be 24 years. The basic railway trades required are those of blacksmith, coppersmith, electrician and fitter, the number of posts being 22.

Scrapping R100

IN the House of Commons on November 25 Sir Philip Sassoon, Under-Secretary for Air, stated that the cost of R.100 might be put at £363,000, exclusive of the cost of the flight to Canada and other experimental flights and subsequent maintenance charges. In selling the ship for scrap, the Air Ministry had retained the engines and one bay, which latter would be used for experimental purposes.

Private Flying & Club News

LANCASHIRE AERO CLUB.—The Lancashire Aero Club is to be congratulated upon having Mr. James Hembrow as its honorary architect. With no better material than some old shippons and a hay loft to deal with, he has succeeded in evolving a club house which must be the envy of most other light aeroplane clubs.

The latest extensions now opened comprise a spacious lounge, a full-size billiard room, four bedrooms, bathroom and changing room for the use of members, and living quarters for the resident staff. Their construction has been made possible by keen interest and support of Mr. J. D. Siddeley and by the generosity and helpfulness of A. V. Roe & Co., Ltd.

The opening of the latest extension on November 28 was performed by Col. Shelmerdine, the Director of Civil Aviation, to whom a golden key of the premises was presented by Sir John Higgins on behalf of the Club.

A distinguished gathering of members and guests then sat down to lunch in the club-house verandah. Some idea of the accommodation of the club house may be gathered from the fact that seating accommodation was found for nearly 100 members and guests at the luncheon.

After Mr. Eckersley, as Chairman of the Club, and Sir John Higgins, as Chairman of A. V. Roe & Co., Ltd., had expressed their appreciation of the visits of the Director of Civil Aviation and other notable guests, Col. Shelmerdine replied. He said that the Air Ministry fully appreciated the value of the light aeroplane clubs to the country, and appreciated also that they could not carry on their good work without a measure of Government support. Experience had shown that light aeroplane flying, however economically run, cost about £2 15s. per hr., and that about £2 per hr. was the maximum charge which the clubs could make without cutting their own throats. The present agreements terminated next July, said Col. Shelmerdine, and he and his colleagues at the Air Ministry would do their best to ensure extended support for the clubs. In conclusion, he congratulated the Lancashire Aero Club on its past record and on its future prospects.

Mr. R. H. Dobson, Vice-Chairman of the Club, proposed the toast of "The Guests," which was suitably responded to by the Mayor of Stockport and by Mr. John Lord, himself one of the pioneers of the Club and now its oldest Vice-President.

Mr. Goodfellow, in proposing the toast of "Lord Wakefield," President of the Club, reminded the members of the wonderful generosity shown by Lord Wakefield to the Club throughout his long association with it. To the generosity of Lord Wakefield and other benefactors the Club owed a great part of its achievements, but it was useless to disguise the fact that the financial position of the Lancashire Aero Club, in common with practically all other light aeroplane clubs, was a difficult one. He welcomed the statement of the D.C.A. and hoped that Col. Shelmerdine would take an early opportunity of calling a meeting of the clubs to discuss frankly the effect of the revised agreement, which he was sure had failed to carry out the intentions of the Government. Any revised agreement should contain provisions for a grant payable in respect of flying hours as well as in respect of licences. He urged also that the petrol tax, which was imposed largely to counteract the unfair competition of motor vehicles with the railways, should be reclaimable in respect of all petrol used by civil aircraft.

Mr. J. F. Leeming, the first Chairman of the Club, recalled happy memories of his early association with the Club, following which the guests inspected the fleet of aircraft lined up outside the club house (five club machines and five private owner members') and watched the Club at work.

AVIATION AT BROOKLANDS.—Mr. Chichester, who has won the Johnson Memorial Trophy for the finest feat of Air Navigation for the year, stayed the night at Brooklands, and was very impressed with the progress his old School had made during his absence.

Mr. William Courtenay has completed his test for his "A" licence; Mr. Henry Vaughan has done a considerable amount of cross-country flying, and Mr. Arthur Franklyn has been polished up preparatory to taking his night flying test for his "B" licence.

The wireless transmitting and receiving installation is now nearing completion, and will be a great asset in the instruction of advanced solo pilots.

Mr. C. Douglas Todd, who gained his "A" licence during the autumn, has returned for a course in advanced flying.

Owing to the success of the Evening Classes at the College of Aeronautical Engineering, it has been decided to run another course. Will all those interested please make direct application for particulars to the Secretary, Brooklands School of Flying, Ltd., Byfleet, Surrey. A brochure will be sent describing in full the courses at the College to those who write mentioning FLIGHT.

A LEICESTER OCCASION.—On Friday evening, November 27, the Leicester Aero Club held one of their periodical dances at the Leicester Palais de Danse. The management of the Leicester Club has already become one of the outstanding features of Civil Aviation, and everything that they do, they do well. This dance was no exception, and provided an excellent evening's entertainment for some 500 enthusiasts at an extraordinarily low cost. Several visitors came by air in spite of the somewhat "sticky" weather, these including: Lt. R. R. Bentley, of Shell-Mex, Ltd., in his "Avian" (Gipsy II); and Capt. A. M. Diamont, of The Dominion Motor Spirit Co., Ltd., in his "Puss Moth" (Gipsy III).

The joint Hon. Secs., Messrs. R. H. Brown and S. Brown, who, by the way, are no relation to each other, were indefatigable in seeing that everyone was provided with partners, and whenever things looked a bit slack they ordained that the next dance should be a "Paul Jones," which naturally had the desired effect of mixing everyone thoroughly. The bacon and egg party which followed in the small hours at the Bell Hotel was more decorous than is usual at such parties, but then these are usually held in the clubhouse, where exuberance of spirits does not interfere with other people.

THE BLACKPOOL AND FYLDE AERO CLUB.—The first annual dinner and dance of the Blackpool and Fylde Aero Club was held on November 20.

Major Alan Goodfellow proposed a toast to the Blackpool Corporation, and said that Blackpool had gone into this business with their eyes open, unlike a lot of other people who had unfortunately been deluded into thinking that Civil Aviation offered immediate prospects of making a fortune. The aerodrome, he said, was particularly good, in that it was close to the town and did not involve aerial visitors in a long and costly journey from the aerodrome.

The Mayor, in responding, said that he, for one, was under no delusion about the expenditure on the aerodrome, and was sure that it was justified, for as the town grew the site would become more and more valuable.

Councillor W. R. Duckworth proposed the toast of the Blackpool and Fylde Aero Club, and voiced the plea for silent aircraft.

Councillor C. Bagot replied, and gave a very clear statement of the actual costs which had been involved in establishing the aerodrome.

PROGRESS AT SHERBURN.—Capt. Frederick Downer has been transferred by The Blackburn Aeroplane & Motor Co., Ltd., from Brough to take charge of the aerodrome at Sherburn. The new Yorkshire County Aviation Club operating there already has over 100 members, many of whom have their own machines. The Blackburn Co. is providing Blackburn Bluebirds for club instruction.

BANKING.—Following the lead of busmen and dairymen (and dairymaids), the banks are now entering the field of aviation by organising a United Banks Flying Club. Its members, like the L.G.O.C. Flying Club, will pay a subscription of 6d. for which they obtain the services of an instructor at 8s. per hr., enabling them to obtain their "A" licence for an outlay of approximately £12.

FLYING IN PRETORIA.—The Pretoria Flying Club has now weathered the difficulties which it has had during the past two years, and has started flying in earnest. On

October 19 Capt. N. C. Cooke gave the first five members dual instruction on a "Moth" (Gipsy I). There is already one woman member, in the person of Miss Ruby Hollis, who up to date has shown exceptional ability and flying aptitude. Further particulars may be obtained from the Hon. Sec., 35, Troye Street.

THE JOHANNESBURG LIGHT 'PLANE CLUB celebrated its anniversary with a dance at the big hangar at Baragwanath Aerodrome on October 31, and several sports events the following afternoon. Over 200 people watched the fun on the latter occasion or went for flips. Eleven competitors (including two lady pilots) took part in the bombing competition, the bombs being small bags of flour. The result was: Mr. Henry Hollingdrake, 1st; Mr. G. B. D. Williams, 2nd; and Mr. J. Robertson, 3rd. A "balloon chasing" competition followed. Floating on a fair breeze, these balloons took some finding and bursting. Finally Maj. S. S. Halse, the club captain, gave a display of stunt flying in a "Gipsy Moth." At the dance the "Bellin Cup," for the most efficient club pilot, was presented to Mr. E. Mauritzzi by Capt. Rod. Douglas.

KARACHI AERO CLUB.—The annual report of this Club shows that the total number of flying hours during the year under review was 1,629, compared with 1,698 in the previous year. The total number of pilots trained was 20 as against 27 in the preceding year. The decrease in both cases was not due to any slackening of effort on the part of the club's staff, but to a slight falling off in the demand for the club's services.

Gliding

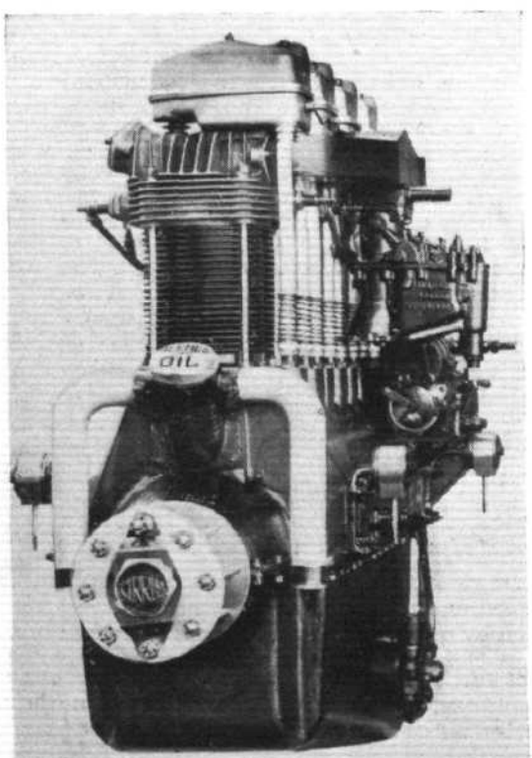
LONDON GLIDING CLUB.—The total number of certificates obtained by this club is now 19 "C's," 31 "B's" and 52 "A's" (the *Sailplane* of November 20 gives the country's totals as 26, 64 and 220). *Ab initio* "C's" have been gained by Messrs. Allen, Molton, Dent, Humby, Moreland, Robertson and Smith. As a general rule, the Prüfling is used for "C" flights (Herr Stamer please note).

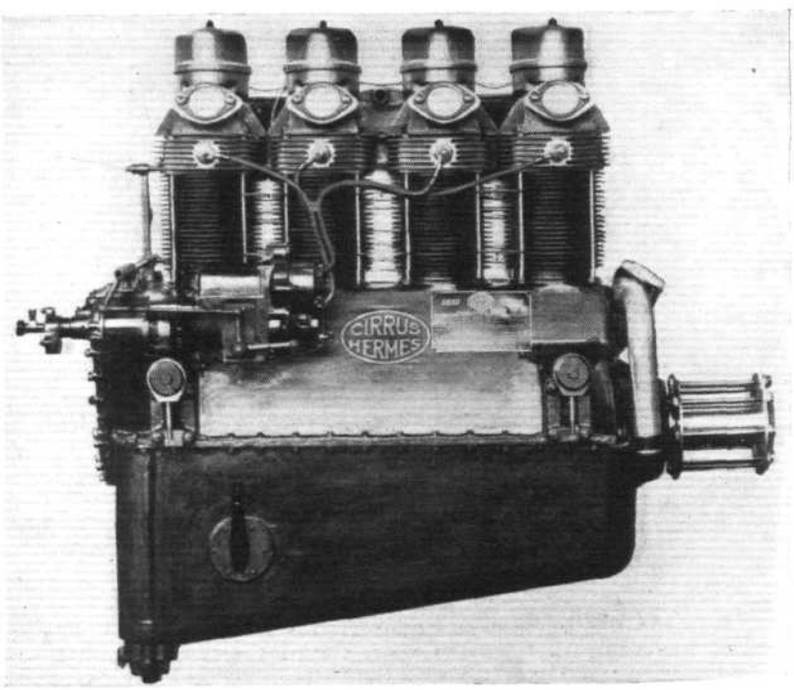
On September 6 Mr. Grice made all three flights for his "B" in one day, ending with 2 min. 40 sec., and averaging 1 min. 55 sec. An abnormally good "A" was lately obtained by Grimstone in the "Dagling"; during a flat calm and from a point short of the top of the hill he exceeded one minute. This gives a sinking speed so fantastically low that one dare not suggest the actual figure.

In the club Professor Mr. Buxton, during the last summer camp, left the ridge immediately after launching, and proceeded over the flat 3½ miles W.S.W., the wind being 28 m.p.h. westerly. He climbed all the way and touched 2,100 ft. over Ivinghoe Aston, his aneroid having been set at zero at the launch. He then flew 2 miles N.E. to Eaton Bray, losing most of his height on the way, and thence returned to the ridge, now 2 miles east. Without landing, he worked up to 1,000 ft. on the ridge up-current, and flew down-wind 6¼ miles east to Luton Hoo Park, where he landed. Duration, about three-quarters of an hour.

The second hangar is practically complete, and the club-house is roofed. Visitors are always welcome. For refreshment and a bed, the "Rifle Volunteer" is recommended unreservedly.

TOWED GLIDING AT SHOREHAM.—A towed gliding display was given on the aerodrome of the Southern Aero Club at Shoreham on November 22. Mr. Lowe-Wylde, of B.A.C., Ltd., Maidstone, gave an exhibition with his two-seater glider, being towed up by Mrs. Green driving her hard-worked Bentley. This combination has now been seen at aerodromes all over the country, and never fails to function perfectly. Mr. Lowe-Wylde took up many passengers, including Mr. M. H. Volk and Mr. L. E. R. Bellairs, Directors of Southern Aircraft, Ltd.; Miss N. B. Birkett, Secretary of the Southern Aero Club; and Mr. C. Pashley, the clubs' chief instructor.





THE LATEST "HERMES II": These two views show the engine in its latest form. Among the improvements visible in the photographs are: the enclosed valve gear, the resilient type of bearer feet, and the black lacquer finish.

Airisms from the Four Winds

The French Madagascar Flights

FOR some considerable time past France has been concentrating on the problem of aerial communication with her African Colonies, and from time to time sent out "expedition" flights to these parts. Such a flight was recently accomplished by MM. Moench and Burtin, who —as previously reported in FLIGHT—established a record flight from France to Madagascar in 6 days 9 hr. 45 min. Their machine was a Farman 190 monoplane with 230-h.p. "Titan" engine, and their route lay by way of Colomb Bechar, Gao, Fort Lamy, Bandundu, Elizabethville, Quilimane, and Tananarive. They started on their return journey on November 14, and made the following progress:—November 14, Quilimane; November 15, Elizabethville; November 18, Coquilhatville; November 19, Fort Lamy; November 20, Gao; November 21, Reggan; November 24, Oran; November 25, Paris. It will be seen that they took about 12 days for the return flight—not five as reported in the Press. This arose, no doubt, by confusing the Moench and Burtin flight with another French flight which was being carried out about the same time, in the reverse direction, by MM. Goulette and Salel. These two pilots left Istres on November 23, also in a Farman 190, but fitted with a 300-h.p. Lorraine, and flying as follows:—Assuan, Djibouti, Mogadiscio, Dar-es-Salaam, arrived at Tananarive, Madagascar, on November 27, taking 4 days 8 hr. for the journey, and thus beating Moench and Burtin. We understand that Shell fuel and oil was employed on these flights.

Sir Alfred Yarrow Returns

SIR ALFRED YARROW who, as reported last week, has been carrying out an aerial tour of Europe in an Imperial Airways machine, arrived back at Croydon on November 27, having covered about 3,000 miles. He stated he was planning another trip.

Miss Peggy Salaman Home

MISS PEGGY SALAMAN, who with Mr. Gordon Store established a new record for a flight from England to South Africa, arrived with her "Puss Moth" aeroplane at Southampton, on November 30, in the *Warwick Castle*, and was given a civic welcome by the Mayor. It was originally intended that she should fly to Croydon next day, but owing to the foggy weather conditions this had to be cancelled, and she travelled to London by train. She attended a reception at Dorchester House later, and in a broadcast talk that night Miss Salaman paid a glowing tribute to Mr. Gordon Store, the navigator on the flight. "The success of our adventure was due," she said, "to the superb piloting, brilliant navigation, and untiring determination of Mr. Store." On Wednesday she attended a dinner given in her honour by the Air League of the British Empire, about which we hope to say more next week.

The Fairey (Napier) Monoplane

THE Fairey (Napier) long-distance monoplane, with Sqd. Ldr. Gayford and Flt. Lt. Bett as pilots, left Egypt on return to England on November 20, and landed at Malta. It next proceeded to Marseilles, where it remains weatherbound.

Col. Lindbergh in Jamaica

COL. LINDBERGH—who, with Mrs. Lindbergh, recently carried out an aerial tour from America to Japan and China—is now making a "good will" cruise with 32 passengers in the airliner *American Clipper*. On November 21 he arrived at Kingston, Jamaica, where he was received by the Governor, Sir Reginald Stubbs, and others. The following day he proceeded to Colon.

First Swallows, now a Stork

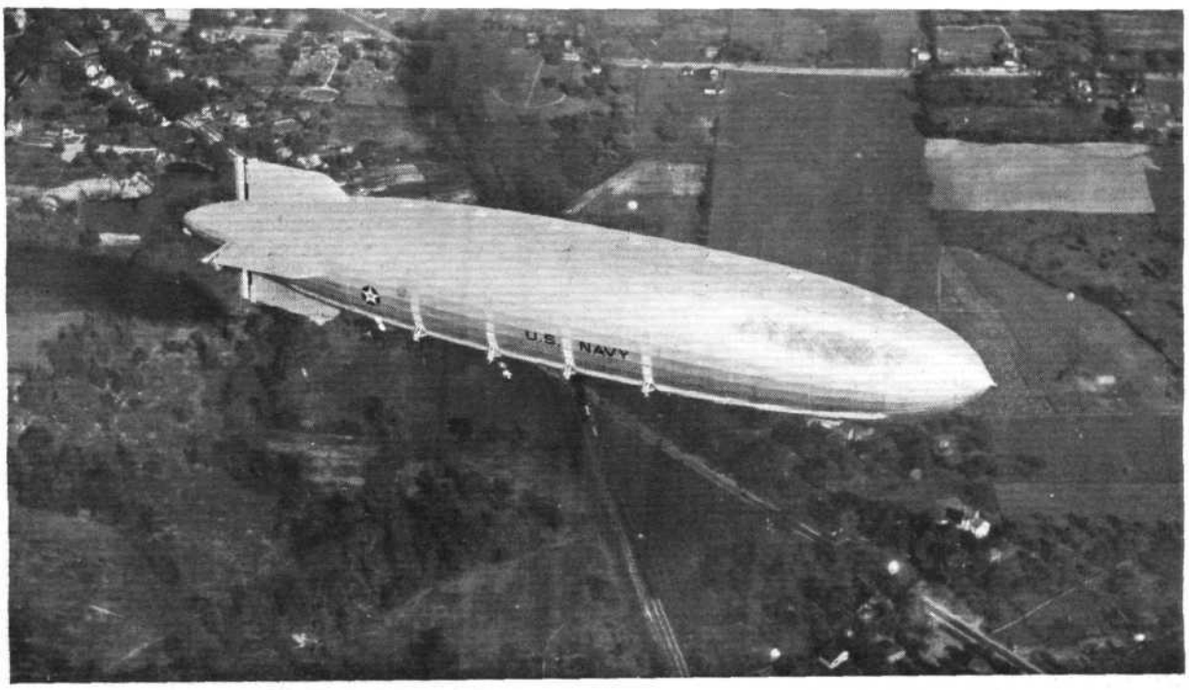
BIRDS will soon give up flying by their own effort and rely upon aircraft. Only a little while back thousands of stranded swallows in Central Europe were conveyed south by aeroplane, now we learn that an aeroplane has been specially chartered for a stork, which, owing to slight injuries to its wing, had to make a "forced landing" when it was flying with its comrades to Africa for the winter. The Belgrade branch of the Yugoslav Society for the Protection of Animals decided that the stork would perish if it remained in Belgrade, and therefore arranged to have it sent by special aeroplane to Constantinople. A hamper of frogs and other delicacies were to be carried on board.

Mrs. J. G. Weir Flies Autogiro

ON November 27 Mrs. J. G. Weir made a solo flight in an Autogiro at Hanworth of about twenty minutes' duration. Mrs. Weir had previously had only nine hours' solo on an "ordinary" machine, and 35 minutes' instruction on the Autogiro.

Rear-Admiral Byrd's Next Polar Flight

REAR-ADMIRAL BYRD, U.S.N., has stated that he was going to the South Pole in the autumn of 1932 for further research and exploration. He will try to recover the aeroplanes which he had to abandon on his last expedition.



THE NEW RECRUIT: The large Goodyear rigid airship *Akron*, which has recently made its trial flights—on one occasion carrying 207 persons—on its way to New Jersey to be taken over by the U.S. Navy.

Air Transport

A New Shackleton Design

DEPARTING somewhat from our usual custom, we publish below a description not of an aircraft already built, but of an interesting *suggested* design for a commercial aeroplane. The design is due to Mr. W. S. Shackleton, who, with Mr. Lee Murray, is now in business as consulting engineer and adviser on aeronautical matters. Mr. Shackleton, it will be remembered, was for a period chief designer to Wm. Beardmore & Co., and later went to Australia for reasons of health, there to become chief engineer to the Larkin company and Australian Aerial Services, a post which he held for four years, during which period the company's machines flew 700,000 miles without serious accident. Mr. Lee Murray is one of the best pilots Australia has produced, and in 1929 he flew a "Gipsy Moth" from Karachi to Melbourne, while this year he flew a Desoutter monoplane from Vancouver to Montreal *via* Los Angeles, San Diego, St. Louis and New York. While in America Mr. Lee Murray flew a large number of American aeroplanes, so that he has had practical experience of a very great number of types.

Shackleton and Lee Murray, whose offices are at 175, Piccadilly (Telephone Regent 3092), mainly concentrate on work for overseas clients, chiefly reporting on the suitability of specific types, but also prepared to do any technical work, such as design and flying, reporting on flying qualities, etc.

Mr. Shackleton's four-engined 30-passenger machine is of somewhat unusual conception, and he is anxious to give full credit to Mr. J. J. Davies, one of his Ground Engineers in Australia, for the outrigger scheme. Mr. Davies' idea was to build a light plane much in the same way as a motor car is constructed, using two parallel members similar to the chassis frame, on which engine, body shell and tail would be mounted. The design shown on the next page is, of course, quite different, but Mr. Davies' outrigger scheme has been brought into the design for reasons which will be explained later.

The design shows a semi-cantilever monoplane in which the four engines are mounted in tandem pairs above the wing, the tail being carried on outriggers and the fuselage abbreviated to a large nacelle. The designer is of the opinion that this arrangement should be lighter than a normal type of fuselage, as the cabin is relatively lightly stressed. Moreover, it is the intention that the design should be capable of a variety of uses, even including the substitution of a boat hull for the nacelle. In that case, the use of the tail outriggers would, it is claimed, get the tail surfaces well clear of the water without that up-curved stern portion of the flying boat hull which Mr. Shackleton considers to be an expensive and un-mechanical structure.

Although the design shown represents a passenger-carrying aircraft, Mr. Shackleton points out that the design has been so planned that the general lay-out should be equally suitable for a military machine such as a bomber. In the latter form the compact cabin and tail outrigger design should give an exceptional field of view and fire rearwards, both above and below the cantilever tail. From the cabin the view is good in all directions. As a troop carrier, if unarmed, the machine would be suitable practically without alterations. As a flying boat or amphibian the hull design would be altered to provide the usual vee bottom, steps, etc., but otherwise the general lay-out could remain very much as it is.

To deal with the design as it stands, the placing of the engines has been chosen because the arrangement gives a very small turning couple in the event of failure of one engine, while the obstruction to view from the cabin is avoided and noise is reduced to a minimum.

The machine is intended to be of all-metal construction, and the cabin portion or nacelle would be a sort of coach-built affair, light in weight because it is not heavily stressed, and relatively cheap to build on account of the type of construction planned.

The tail-carrying outrigger arrangement was chosen for several reasons. One advantage is that by having the tail supported at two points well spaced, the tail can readily be made a cantilever without becoming heavy. The tail is so mounted on the outriggers that the tail-plane spars stiffen the outriggers against torsional loads induced by the fins and rudders. It is intended that the outriggers should be of a construction identical with that of the main wing spars, so that the principal component parts would be interchangeable. The maximum bending moment in the outriggers is found to be approximately the same as that in the wing spars, a fact which helps to make possible the use of similar parts.

The front and rear main wing spars are identical and are connected by bulkheads at intervals and double-braced on top and bottom of the bays. This arrangement stiffens the wing considerably against torsional loads, and results in similar deflection of both spars under load. The outrigger spars are attached to the cabin, and the wing halves are secured to the outriggers, from which they are detachable. It will be noted that the wings are wire braced below, *i.e.*, that they have lift wires but no anti-lift wires. The system has a minimum of air resistance, reduces structure weight as compared with a pure cantilever wing, and enables parallel wings to be employed, thus reducing manufacturing costs.

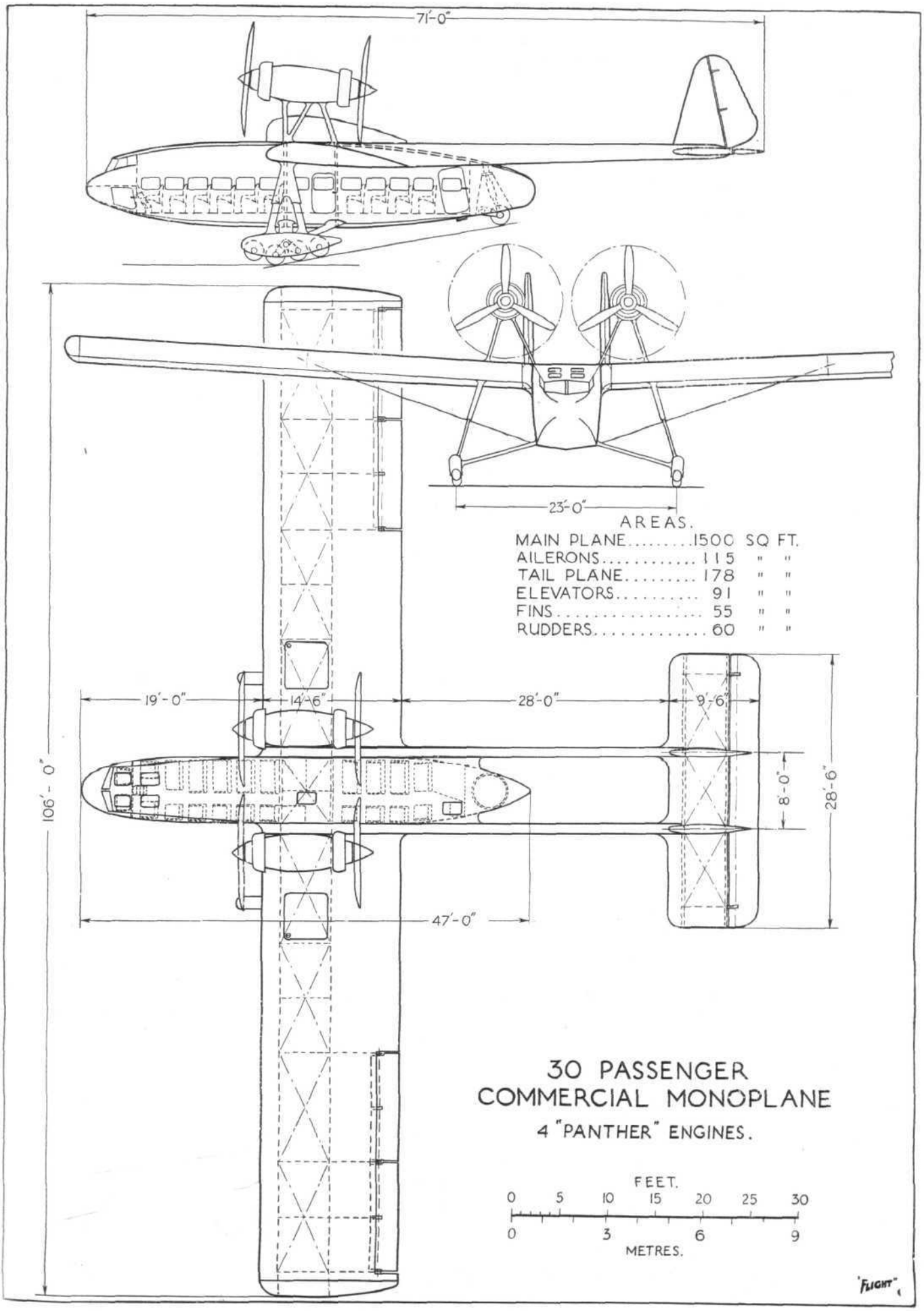
No anti-lift wires are shown in the general arrangement drawings, but in the event of stressing requirements calling for heavy down loads wires could easily be added on top. They would then be taken from the same bracing points as the lift wires, and would run to the centres of the engine nacelles, and with additional wires joining the port and starboard nacelles.

An interesting innovation is to be found in the design of the undercarriage. Instead of a single large wheel on each side, there is a wheel unit consisting of four smaller wheels (with tyres of the low-pressure type) mounted inside a stiff duralumin casing of streamline shape. This casing is free to pivot on the main axle, and an inverted vee strut unit with two shock absorber struts provides the springing as well as automatically limiting the amount of "rock." The advantages of this type of undercarriage should be low air drag, a minimum of two wheels in contact with the ground, and, under heavy loads, three, or under certain ground conditions four wheels, so that the machine should be safe on sandy or muddy soil, and under heavy braking conditions. Another advantage, arising out of the caterpillar-like wheel arrangement, is that nosing over should be very unlikely to occur since if the machine tips on to the front wheels the point of contact is well forward. It is not thought that the weight of this type of undercarriage should be appreciably greater than the weight of a normal type.

The tail wheel arrangement is, like that of the main undercarriage, unorthodox. The wheel is mounted in a cone on radius rods, and is free to rotate through 360 degrees. The shock absorbing strut of the tail wheel is connected to the top thrust bearing of the cone. It will be seen that only a little more than half of the wheel is exposed, so that the drag should be low. Under purely vertical loads there should be very little bending in the axle, as the shock absorber struts are taken to points almost vertically above the areas in contact with the ground.

When the machine is turning, or if it lands with a certain amount of side drift, considerable moments in a horizontal plane could be transmitted to the axle, and when running on the ground with tail up or tail down there would be "toeing in" and "toeing out" of the undercarriage. The designers have, however, looked into these problems very carefully, and they are satisfied that these conditions can be allowed for without excessive axle dimensions or increase in weight.

The power plant which Mr. Shackleton has foreseen for his 30-passenger machine are Armstrong-Siddeley



THE SHACKLETON SUGGESTED DESIGN: General Arrangement Drawings, to Scale.

"Panthers," and it will be observed that he proposes to make use of such modern aids to drag-reduction as Townend rings.

In other respects also the Shackleton machine is a remarkably "clean" looking design, and for the wing loadings and power loadings estimated it would seem likely that the calculated top speed of 160 m.p.h. should be attained. Mr. Shackleton estimates that the cruising speed at 3,000 ft. should be approximately 130 m.p.h., which would be a great deal above the cruising speeds of any commercial machines we have in service at the present time. The calculated tare weight of the machine is 13,120 lb., and as the machine is stressed for a gross weight of 23,070 lb., the estimated disposable load becomes 9,950 lb. As the wing area is 1,500 sq. ft. the wing loading becomes 15.37 lb./sq. ft., which Mr. Shackleton calculates will give a landing speed with full load of 62 m.p.h. This is a figure considerably above what we are accustomed to, but, on the other hand, with a power plant consisting of four engines, there should be little risk of a hurried forced landing having to be made, so that what with the chance of picking a suitable field and the use of the special undercarriage fitted with effective brakes, a landing speed of this order might be tolerated.

For a gross weight of 23,000 lb. the power loading with four engines running at maximum power is 10 lb./h.p. With one engine out of action this becomes 13.3 lb./h.p., and with two engines stopped the power loading is 20 lb./h.p. With a wing loading of more than 15 lb./sq. ft. it seems a little doubtful whether the machine would keep up on two engines, but its rate of descent should at least be very slow, and with three engines running, especially in view of the placing close together of the engines, flying on should present no difficulty. It is estimated that the initial rate of climb will be 1,100 ft./min., and that the ceiling should be about 19,000 ft.

Xmas Air Mail to the Cape

THE Postmaster-General announces that, in order to provide an opportunity for sending Christmas letters and parcels by air to South Africa, Northern Rhodesia and Southern Rhodesia, arrangements have been made with Imperial Airways for the flight due to leave Croydon on December 9 for East Africa, to be extended to Capetown, and it is hoped that the mail will reach Khartoum on the 14th, Nairobi on the 16th, Dodoma (Tanganyika) on the 17th, Broken Hill and Salisbury on the 18th, Bulawayo and Johannesburg on the 19th, and Kimberley and Capetown on the 20th. The combined postage and air rates are:

Letters	First ½ oz.	Each succeeding ½oz.	*Parcels.*
Sudan	5d.	4d.	4s. 6d. per lb.
Kenya, Uganda, Tanganyika	7d.	6d.	6s. 0d. per lb.
Zanzibar, Northern & Southern Rhodesia ..	9d.	8d.	7s. 0d. per lb.
South Africa	1s. 0d.	1s. 0d.	7s. 0d. per lb.

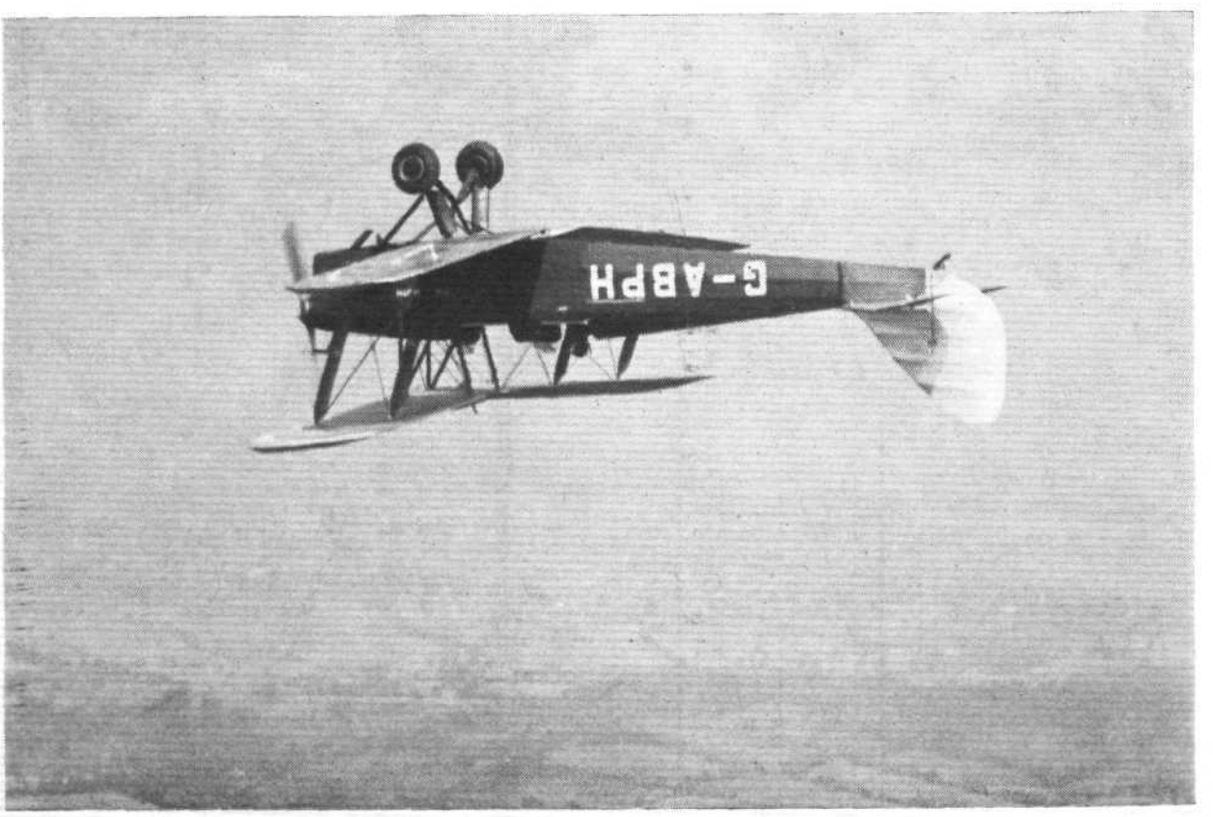
The latest time of posting for letters in the air mail letter box outside the G.P.O., London, will be 11.0 a.m. on December 9; and for parcels 9.0 p.m. on December 8 at the G.P.O., London, and correspondingly earlier elsewhere. The first regular outward mail leaves Croydon on January 20, and the first homeward mail leaves Cape Town on January 25.

Australian Xmas Air Mail

MISFORTUNE has overtaken the Australian National Airways Avro 10 *Southern Sun*, which left Darwin on November 23 with mails for England. Leaving Batavia on November 25 the machine flew to Singapore and Alor Star. When taking off the following morning, however, the *Southern Sun*, which was heavily loaded, crashed into a paddy field just outside the aerodrome. The machine was completely wrecked, and Col. Brinsmead, Australian Controller of Civil Aviation, who was a passenger, was slightly injured, but the pilot, Mr. G. V. Allan, and second pilot, Mr. B. S. Calligan, were unhurt. At first it was reported that the mails would be sent on to England by the P. & O. liner *Kashgar*, but subsequently it was announced that Air Commodore Kingsford Smith would set out from Sydney for Alor Star in the *Southern Star*, which would resume the flight to England with the mails. He left Sydney on November 30.

Northern Air Lines, Ltd.

A SEASON of bad flying weather has brought Northern Air Lines, Ltd., to a difficult financial situation. The staff at Manchester airport has been cut down by 50 per cent.—the pilots being reduced from 13 to three—and Mr. J. W. Shepherd has been appointed receiver to the company which controls Northern Air Lines, a company known as Northern Air Transport, Ltd. At present the activities of the company are being carried on, but the future of the company is uncertain.



HANGING ON THE ANTI-LIFT WIRES: Captain Hubert Broad doing inverted flying on one of the new "Tiger Moths." The first of a batch of these machines have already been delivered to the R.A.F. Flying Training School at Grantham. (FLIGHT *Photo.*)

Airport News

CROYDON

THE news of Bert Hinkler's latest achievement in crossing the South Atlantic alone in a "Puss Moth" was received here with the greatest enthusiasm. Although of recent years his visits to Croydon have been very few and far between, he is, nevertheless, as popular as if he were one of our happy family. The unassuming way in which he tackles a job is always remarkable. Before anybody knows what his intentions are he has done the job. This latest flight undoubtedly ranks with some of the greatest flights undertaken, and it was all-British. Well done, Sir, and accept the heartiest congratulations of Croydon, and may you continue to uphold the traditions of aviation in the British Empire.

On Monday, when the Sabena machine arrived from Brussels, a large bird was found firmly embedded in the leading edge of the wing. The Fokker wing is all wood, so some idea of the force of the impact can be well imagined. The only parts of the bird that were visible were its wing tips, its fuselage was right inside the wing.

During the week we had an American visitor on a Stinson Junior monoplane, on which the usual American finish is very noticeable. The machine is of the cabin type, with high wing supported by struts. A Townend ring encircles the "Wasp" engine. Wheel brakes and tail wheel are fitted.

The third H.P. 42, *Hanno*, was due to leave for Cairo on Sunday, but fog settled down early and remained all day. Saturday was also very foggy during the morning and several services had to land at Penshurst until after lunch. Sunday was a total wash-out, and no business was done at all. These are the sort of week-ends that are not *over* popular with the joyriding companies, although their expenses still go on the same. Both Surrey Flying Services and the Rollason Aviation Co. are busy, however, with pupils for both "A" and "B" licences. The new order concerning the night-flying flights from Croydon to Lympne or *vice versa* has not been received too well—it is thought that the cost to a pupil will be very high for hiring a machine for such a hazard. And how much more will the insurance people want?

The import and customs staffs were kept working at fever pitch throughout the week to clear the freight that has been dumped recently. No less than five special Luft Hansa machines arrived from Berlin, and, in addition, several Sabena machines with freight, also from Germany, as well as Belgium. All the Air Union machines from Paris were also loaded to capacity. Goods consisted of almost everything it was possible for aircraft to carry. A marked difference can be seen in the quantities arriving since Monday. On the latter day and Tuesday considerable fog entirely upset the airways. The airport of Lympne is having a very busy time these days, for as I write I understand that eight air liners are there, including two Imperial machines of the "Hannibal" class. What will the nautical gent. say when he knows that Portus Lympneus is capable of getting on without him?

Traffic figures for the week were:—Passengers, 521; freight, 79 tons.

P. B.

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Command of Tangmere Station

WING COM. J. B. GRAHAM, M.C., A.F.C., has completed his three years' tenure of the command of Tangmere Station, the home of the two interceptor fighter squadrons, Nos. 1 and 43. He has been succeeded by Wing Com. R. M. Drummond, D.S.O., O.B.E., M.C., from Manston.

The Rt. Hon. F. E. Guest

ON relinquishing the command of No. 600 (City of London) (Bomber) Squadron, Auxiliary Air Force, Squadron Leader F. E. Guest has been promoted to the honorary rank of Air Commodore.

"Waghorn Memorial Fund"

"IN view of a general wish expressed by the friends and admirers of the late Flt. Lt. H. R. D. Waghorn, A.F.C., that his memory be perpetuated in some form, a Committee, consisting of the members of the 1929 Schneider Trophy Race, under the Chairmanship of Air Vice Marshal A. M. Longmore, C.B., D.S.O., have decided that a Memorial Portrait hung in the Royal Air Force College, Cranwell, would be a fitting tribute to one with such a brilliant but meteoric career. All subscriptions should be forwarded to Flt. Lt. J. I. T. Jones, Hon. Secretary, Headquarters, No. 1 Air Defence Group, Royal Air Force, 145, Sloane Street, Sloane Square, S.W.1, and cheques should be made payable to "Waghorn Portrait Fund."

Air Services: Voluntary Renunciation of Emoluments

THE Chairman of the Aeronautical Research Committee has notified the Air Council that the non-official members of the Committee have voluntarily agreed to surrender 10 per cent. of the fees due to them for the next year. There are also many other cases in which medical officers and others in receipt of fees for services rendered to the department have either willingly accepted or voluntarily proposed the surrender of a percentage of these fees. The Air Council desire to record their appreciation of the public spirit shown by all concerned in this connection, and in other cases in which officers and others, both in the Air Ministry and elsewhere, have offered to renounce emoluments of varying amounts in relief of the exchequer. For example, a civil surgeon has resigned his fees for certain operations conducted by him, and in another case an officer of the Royal Air Force Reserve of Officers resident abroad has surrendered his annual retaining fee.

An International Air Race?

A SUGGESTION that an international air race in place of the Schneider Contest be instituted has been made in the *Corriere della Sera* of Milan. The paper states that both France and Italy intend to continue high-speed flying, and an official announcement by the Italian Air Ministry lays stress on this form of development as being most valuable to both pilots and designers.

A New "Model" Club

IN that city of "cranks" and "idealists," as critics habitually speak of the inhabitants of Welwyn Garden City, Herts, a model aeroplane club has been formed, and its enthusiastic juvenile and adult members crowd the clear atmosphere with some very promising models every Sunday morning. The club's inspiration is Mr. Burkitt, of Tinker's Hill, in that city, who in the past supplied several large London stores with popular models.

High-Speed Pilot to Lecture

SQD. LDR. A. H. ORLEBAR, D.F.C., the Captain of the English Schneider Trophy Team, has promised to address the members of the Hornsey (North London) Young Men's Christian Association on Monday, December 7, at 8 p.m., on "High-Speed Flying." The lecture will be illustrated by cinematograph films and lantern slides. Col. The Master of Sempill is acting as chairman.

Aero Club de France Medal

THE Aero Club de France is offering a medal, to be awarded by a Commission of Bibliography, for the best work on aviation published during the year outside France. Authors or publishers desirous of submitting their works are requested to forward two copies before December 31, 1931, to Commission de Bibliographie et d'Histoire, Aéro Club de France, 35, rue François 1er, Paris.

Sale of Waddon Factory

THE War Office has sold the National Aircraft Factory at Waddon to Mr. A. Maitland Kish, who acted on behalf of Town Investments, Ltd., of which he is chairman. The sale price has not been disclosed. The factory covers an area of about 25 acres. After the Armistice it was leased to the Aircraft Disposal Co., Ltd., and was used for the sale of surplus war material. The sheds adjoining Croydon aerodrome belong to the Air Ministry and are not included in the deal.

The Industry

DECREASING THE FIRE RISK

A centralised fire extinguishing system worked automatically by an outbreak of fire, a crash, or manually by the pilot

ENGLISH aircraft have until recently depended only upon hand extinguishers. These are effective only when the pilot has ample time in which to land the aircraft and then handle the extinguisher. It will be seen, therefore, that for the case of a crash wherein the pilot is rendered senseless, or when an outbreak of fire occurs in the air, some form of remotely controlled extinguisher is the best arrangement.

J. Blakeborough & Sons, Ltd., of Brighouse, Yorkshire, are now putting on the market an installation which has been designed to fulfil the very stringent Air Ministry requirements for this type of extinguisher.

Briefly, the apparatus consists of a container for the extinguishing medium, which in this case is purely Methyl-Bromide ; a release gear for allowing the liquid to flow along pipe lines to nozzles placed at danger points ; and a series of electrical contacts for working the release gear.

In the container the Methyl-Bromide is carried in a lead bag (1) inside a metal cylinder (2) in such a way that it is completely separated by a perforated baffle (3) from the compressed air used as the propellant, and cannot, therefore, possibly atomise until it issues from the jets.

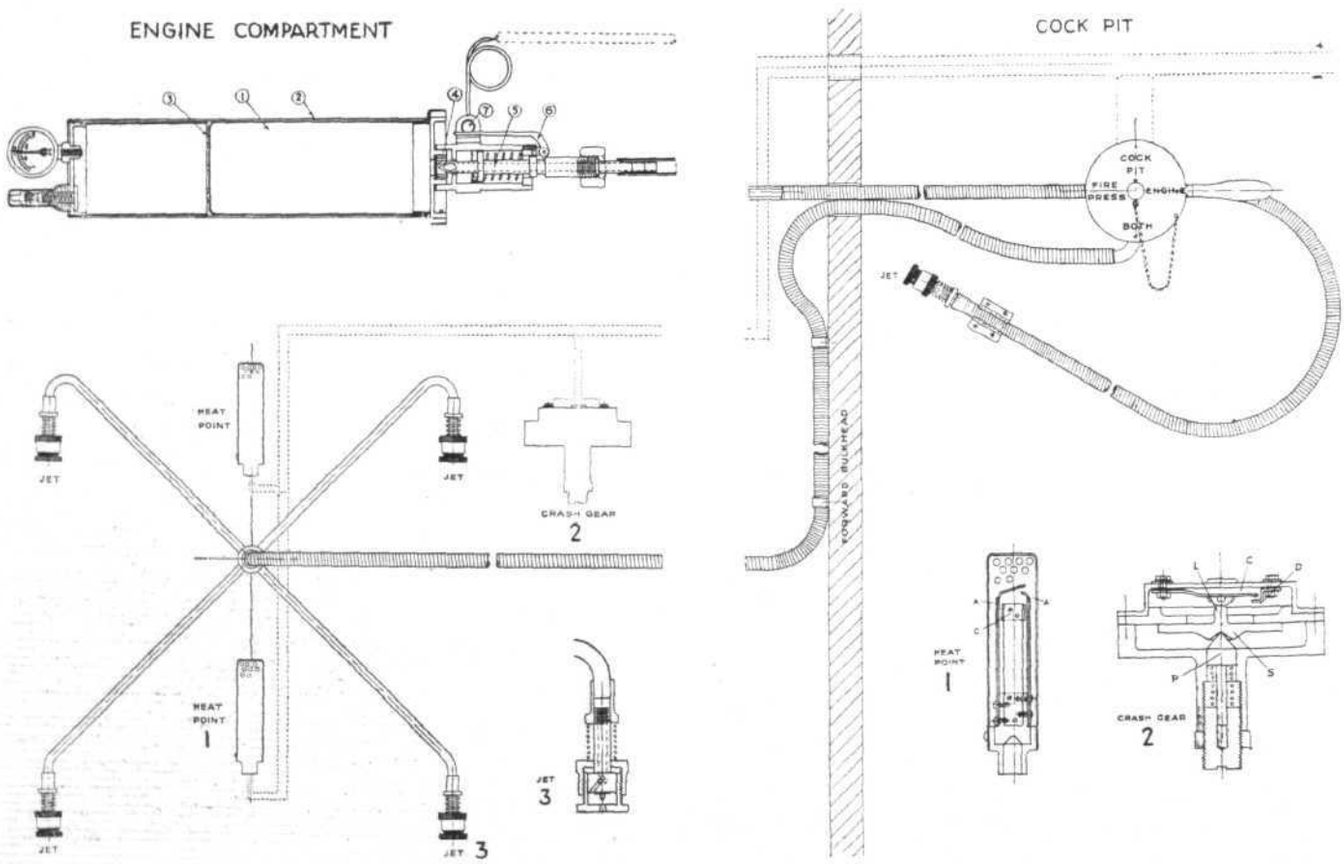
In order to obtain the full effect from any highly volatile liquid, too rapid vaporisation must be guarded against so that full use may be made of the latent heat of evaporation of the liquid in extinguishing the fire. This is what the "AF" type of extinguisher claims to do owing to the fact that the propellant used does not intermingle with the Methyl-Bromide, causing disruption at the jet and premature vaporisation.

The liquid issues from the cylinder when the diaphragm (4) is pierced. The piercer (5) is actuated by a spring which is held back by the trigger (6). This trigger is released by the fracture of a small frangible tube (7), which is electrically fired, upon operation of the heat-points or crash contacts.

The crash contact is illustrated as Fig. 2, and, it will be seen, consists of a steel slider (S) held centrally by the spring-loaded plunger (P). If the movement of this in any direction in one plane is suddenly arrested, the momentum of the steel slider will tend to throw it off centre. This tendency is opposed by the spring-loaded plunger, and the tension of the spring can be adjusted to allow the slider to move at a predetermined impact. So long as the slider is central, the projection (L) on its upper surface supports the spring contact strip (C). When this support is lost, that is, when the slider moves from its central position, the strip falls and contacts with the point (D), thus closing the circuit, firing the charge in the frangible tube, releasing the trigger, allowing the piercer to perforate the diaphragm and permitting the methyl-bromide to issue from the jets (3).

The heat points, Fig. 1, consist of two bi-metal strips which distort under heat owing to the unequal expansion of the two metals from which they are composed. When these strips distort they approach one another and their ends, in contacting, close the circuit. Provision for preventing their accidental contact owing to vibration takes the form of yet another bi-metal strip having at its extremity a fibre strip which normally lies between the other two bi-metal strips. When heated this bends the fibre strip outwards, and allows the first two a clear path to make contact with each other.

The pressure of the air used to collapse the lead cylinder may be checked at any time by the pressure gauge which is fitted into the head of the container. This constitutes a reliable means of checking that the apparatus is in working order, for if the pressure side of the container has been punctured or in any way damaged it will immediately be apparent on looking at the pressure gauge. A further



A diagrammatic extinguisher lay-out. The top left corner shows the container in section while the bottom right shows (1) a heat point, (2) the crash gear, all as used in the "AF" type extinguisher.

advantage of this "lead tube" type of container is that the Methyl-Bromide will be ejected regardless of the attitude of the machine. Furthermore, the collapse of the lead cylinder is so complete that its volumetric capacity after complete expulsion of the contents is less than 1 per cent. of its original capacity, and lastly, such construction entirely precludes any possibility of the propellant, in this case the compressed air, mixing with the extinguishing medium. As a measure of the extinguishing properties we will quote the requirements for the Air Ministry test. For this test the AF type extinguisher was standard in every way with 4 ft. of ½-in. bore pipe serving a single No. 1 Vortex jet. The specification requires . . . "A metal tray not less than 30 × 40 × 2 in., five baffles consisting of pieces of angle iron (one side being at least 6 in. high), 12 in. in length, are to be placed irregularly and staggered about the tray, the 6-in. side being vertical. 1 lb. of wood wool is to be disposed evenly over the tray and round the baffles, 60 fluid oz. of petrol are to be poured evenly over the wool, after ignition the fire is to burn for 10 sec. before the extinguisher is allowed to play upon it. The quantity and quality of the fire extinguisher medium used shall be such that ⅓ of the quantity provided shall be capable of extinguishing such a fire."

In the case of the "AF" type the time taken for total extinction of the fire was 21 sec., while the time of total discharge is 85 sec., thus rather less than ¼ of the contents being necessary for the extinction of this fire. Such a result can only be looked upon as extremely satisfactory.

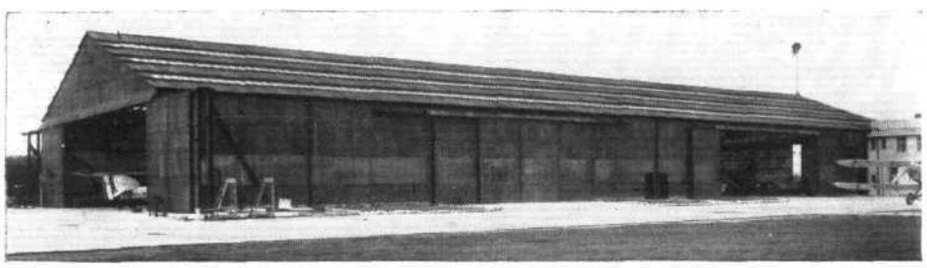
HANGAR ROOFING

AERODROME buildings in this country and abroad are in many cases roofed or entirely covered with Cellactite, which is a permanent steel-cored corrugated covering claimed to combine the advantages of corrugated iron and asbestos cement without their disadvantages. Cellactite is an imperishable compound of high-grade asbestos and asphalt consolidated by pressure, and with its steel core is supplied in corrugated sheets up to 9 ft. in length. These sheets are immersed in a protective coat of chemically inert bitumen, which, as it is tough and rubber-like, completely resists weather.

The watertightness of a corrugated roof depends upon the weathering of the laps, and after considerable experiment the manufacturers of Cellactite have standardised a method of laying their roofing to avoid openings to the weather at the junction of end and side laps. This roofing has no tendency to crack, and, although it is light and therefore easy to handle, it is not fragile, so that the man traffic, necessary on large roofs to keep glass and gutters clean, does not bring up the question of safety.

It is supplied in several colours, black, aluminium, russet or green, and as it requires no painting afterwards maintenance costs are low. The atmospheric comfort within a Cellactite-covered building is assured by its non-conductive properties; condensation, for example, being eliminated by the treatment to the inside of the sheet, thus this roofing is well suited to tropical countries. The Royal Air Force and Imperial Airways already use it on their buildings in Egypt and Iraq, while in Great Britain Cellactite can be seen at such places as the Handley Page Aerodrome at Radlett, the Fairey aviation shed at Hounslow and in two large sheds at Farnborough.

Further details may be obtained from Cellactite & British Uralite, Ltd., Lincoln House, 296-302, High Holborn, London, W.C.1.



A Cellactite roof at the Gt. West Aerodrome of the Fairey Aviation Co., Ltd.

A NEW TURN INDICATOR

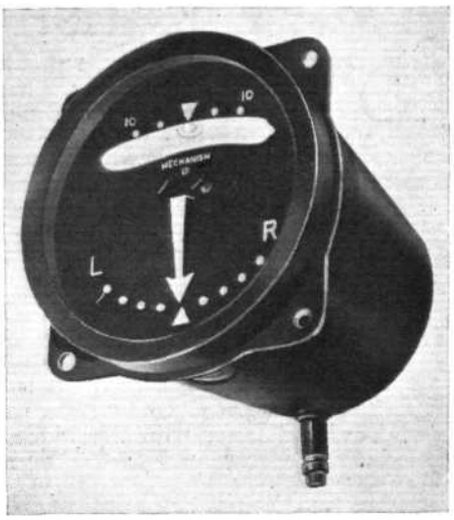
MECHANISM, LTD., of 6A, George Street, Croydon, are now marketing an exceptionally light turn indicator. This instrument weighs only 14 oz., which, together with the venturi head, which is another 2½ oz., provides the pilot with a complete turn indicator installation for very little over 1 lb.

In its operation the "Mechanism" Turn Indicator is one of the most sensitive and yet completely dead-beat instruments of this nature which we have seen. Its sensitivity may be gauged from the fact that the first division on its scale is calibrated for a complete turn in 2½ minutes. It is possible, moreover, to detect the movement of the needle when turning at a rate of 20 min. for the 360 deg.; furthermore, at the end of such a turn the needle returns to the zero point promptly without any indication of sticking. Whenever the instrument is turning, the return to zero is immediate, and under no circumstances could we induce any overshoot and consequent oscillation.

The "insides" are particularly simple and straightforward, and consist essentially of a venturi-driven gyroscope, the venturi used giving an equivalent to 3 in. of mercury.

A bubble, or ball type, of inclinometer is also provided on the face of the instrument, thus making it into a Turn and Bank Indicator.

A particular feature of this instrument is its comparative immunity from changes of temperature, and even under conditions of extreme cold it is satisfactory. The rotor is brass, as are the housings of its end bearings and the gimbal bearings, distortion due to unequal expansion thereby being obviated. The side arms of the gimbal and the frame of the instrument are of aluminium, as is, of course, the casing and face. Several of these instruments have already been in use for months and have given every satisfaction.



The "Mechanism" Turn and Bank Indicator. Note the large pointer.

THE B.T.H. COMPANY'S LOSS

AN ANNOUNCEMENT which will cause the deepest regret is the death of Mr. Edward Garton on Monday, November 23. Mr. Garton, who was Sales Manager at the Coventry Works of the B.T.H. Co., had been in indifferent health for several years. He was appointed to the position he held at the time of his death, in 1912. He was Chairman of the British Ignition Association and a member of the Royal Automobile Club. His many friends who well knew his exceptional personality and high principles will feel his loss greatly.

The late Mr. Edward Garton, who was Sales Manager of the B.T.H. Co.

BRITISH STANDARDS ASSOCIATION

DURING recent years the British Engineering Standards Association has prepared British Standard Specifications and established British Standards not only for use in the engineering field, but also for a growing range of materials in the building, chemical and textile industries.

The need for regularising this extension of the original functions of the Association has been under consideration from time to time, and became imperative when the chemical industry, as a result of a fully representative Conference convened by the Association of British Chemical Manufacturers, invited the Association to widen its scope to include chemical standardisation generally.

The building industry also desired a substantial extension of the work of standardisation within that industry, and urged that the title of the Association should be more in conformity with the wideness of its scope.

At the Imperial Conference, held in October, 1930, the desire was expressed that there should be a single centralised National Standardising Body in each of the countries forming the British Empire.

It was therefore decided to reorganise the work of the Association into four main divisions of equal standing, responsible for the preparation of British Standard Specifications in the engineering, chemical, building and textile industries, each of the divisions being under the control of a representative Divisional Council.

The Council, therefore, after securing the approval of the members of the Association, applied for, and have been granted, a Supplemental Royal Charter, authorising these changes.

In future the name of the Association will be the "British Standards Institution," and its activities will be under the control of a General Council, which will have under it the four Divisional Councils. The work of the engineering division will, as before, be delegated to Industry Committees dealing with the main branches of the engineering industry, such as civil engineering, mechanical engineering, electrical engineering, etc., and will, of course, for a time, represent the larger portion of the Institution's activities.

The great development in the standardising movement which has taken place since the first Committee was set up by the Institution of Civil Engineers in 1901 as the Engineering Standards Committee, is a clear indication that industry as a whole has increasingly recognised the economic value of the work. There are now 600 Committees and over 400 published British Standard Specifications. The term "British Standard" has been registered by the Institution as its standardisation mark. The Institution is not a profit-making concern, and, apart from the grants received from the Government and the amount derived from the sale of its publications, it has to look to the associated industries for the funds necessary to carry on the work. Every British firm in these industries is eligible to become a member of the Institution at a nominal fee. Applications should be made to the B.E.S.A., 28, Victoria Street, Westminster, S.W.1.

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THE GUILD OF AIR PILOTS AND AIR NAVIGATORS OF THE BRITISH EMPIRE

THE second annual General Meeting of the Guild of Air Pilots and Air Navigators was held in the Mercers' Hall on Thursday, November 26, at 5.30 p.m., followed by the installation ceremony of the Deputy Master, Wardens and Court, a ceremony that was attended by H.R.H. the Prince of Wales.

The outstanding matter of interest which came up during the first part of the meeting was the announcement that the Air Ministry had decided to recognise the Guilds' certificates for flying instructors and that the production of such certificate would be required before a commercial pilot's licence was endorsed authorising him to undertake the duties of an instructor. Air Com. the Hon. F. E. Guest, Deputy Master, announced with regret that he had received a letter from Mr. Lawrence Wingfield tendering his resignation as Clerk to the Guild.

After presentation of Mrs. Johnston, the widow of Sqd. Ldr. E. L. Johnston, founder of the Guild, and Mr. F. C. Chichester to the Prince of Wales, His Royal Highness addressed the meeting. He said that it was most appropriate that the latest form of transport should have a Guild of its own. He referred to the occasion when, a year ago, he had looked forward to attending the first dinner of the Guild, and remembered with regret the tragic loss of R.101, which had caused this dinner to be postponed. In that disaster both the Master and Deputy Master of the Guild were lost, and he was glad, he said, to see that the work which they had started had been so ably continued.

The Prince, continuing, said he felt that the Guild could be a very great help, not only to civil aviation, but also to the official authorities, as the great profession from which its members were drawn gave to the Guild a wonderful fund of knowledge gained in experience from the very earliest days of flying. They might well be proud, he said, that so early in their career the Air Ministry had shown their confidence in them by recognising the Guild's instructors' certificates.

His Royal Highness then observed that the first award of the Johnston Memorial Trophy had been made to Mr. F. C. Chichester for his magnificent feat of navigating his aircraft from New Zealand to Norfolk Island, a distance of 470 nautical miles, and thence to Lord Howe Island, a further distance of 450 nautical miles. Both these flights, he said, were made entirely by solar observation, and in view of the fact that Norfolk Island was only five miles long, while Lord Howe Island was even smaller, it was no easy matter to find these islands accurately, it was fitting that Mr. Chichester should be presented with this trophy.

The Trophy having then been formally handed over, the Prince remained and chatted with many of the members.

Air Com. the Hon. F. E. Guest, Deputy Master, in his speech of welcome to the Prince of Wales, said that the aim of the Guild was to raise the standard of commercial and civil flying. He said that its members plied their trade whatever the weather, and always upheld the traditions of British aviation. The presence of His Royal Highness, he said, was a great encouragement to them and would give them a more definite status in the National life.

The newly-elected members to the Court were Messrs. G. N. Cox, R. H. Stocken, H. G. Travers and E. L. Lawford; Messrs. O. P. Jones and J. B. Cordes being re-elected.

Among those present were Lord Londonderry, Secretary of State for Air; Sir Philip Sassoon, Under Secretary of State for Air; Sir John Salmond, Chief of the Air Staff; Lord Trenchard, Commissioner of Metropolitan Police; Lt. Col. F. C. Shelmerdine, Director of Civil Aviation; Col. The Master of Sempill, Sir Alan Cobham, Sir Alliott Verdon-Roe, Lt. Col. J. T. C. Moore-Brabazon, Air Com. W. Mitchell, Wing Com. W. Guilfoyle, Sir Alan Anderson, Mr. C. R. Fairey, Capt. A. G. Lamplugh, Mr. Norman Holden, Capt. H. Davis, Miss Amy Johnson, Miss Winifred Spooner, Mr. W. Rogers, Mr. H. H. Perry, Mr. F. Dismore, Mr. A. L. Robinson, Mr. J. Jeffs, Mr. L. Hope, Maj. H. G. Travers, Flt. Lt. M. Findlay, Flt. Lt. J. Armour, Flt. Lt. E. H. Fielden, and many others who are well known in commercial aviation.

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Experimental Civil Aircraft

SIR PHILIP SASSOON stated in the House of Commons on November 25 that, as a result of the recommendations of the Committee on National Expenditure, it was not practicable to proceed with the two experimental types of civil aircraft which formed the new programme for 1931, or with the amphibian type seaplane included in the programme of the previous year. A large experimental flying boat, which was already on order, was, however, being proceeded with, and other proposals consistent with the need for curtailing expenditure to a minimum were under consideration.

Book Reviews

MORE BOOKS

Reviewed by "Daedalus"

"War Birds and Lady Birds." By Elliott White Springs (John Hamilton, Ltd.). Price 8s., post free, from FLIGHT *Office.*

"German War Birds." By "Vigilant" (John Hamilton, Ltd.). Price 9s., post free, from FLIGHT *Office.*

"Gliding and Soaring," by Percival and Matt White (McGraw-Hill Publishing Co., Ltd.). Price 13s., post free, from FLIGHT *Office.*

"The Pageant of Transport through the Ages," by W. H. Boulton (Sampson, Low, Marston & Co., Ltd.). Price 13s., post free, from FLIGHT *Office.*

"Wings Over the World." Edited by Joseph Lewis French (McLoughlin Bros., Inc., Springfield, Mass.).

"Cross Country Flying," by Major Oliver Stewart (Constable & Co., Ltd.). Price 6s. 6d., post free, from FLIGHT *Office.*

"Air Transport Operation," by Wesley L. Smith, Chief Engineer of National Air Transport (McGraw-Hill Publishing Co., Ltd.). Price 20s. 9d., post free, from FLIGHT *Office.*

"It was an Ornithological War!"

ISN'T it time we ceased referring to war-time pilots as if they were a sort of human version of the genus *Raptores*? A man in a fighting aircraft has about as much in common with a bird as the commander of a destroyer has with a horse mackerel. Birds aren't the only things that fly in the air any more than sharks are the only things that float in the sea.

Mr. Springs would do well to find another title for the heroes of his next book. If it is about American pilots, then perhaps Wine and Women will be included, but even for the sake of alliteration let us hope that War Birds will not be brought in again.

However, do not let all that stop you reading this latest volume. It is light and humorous and, what is most refreshing, not nearly so neurotic as so many of the books about American airmen have been. There is plenty of wine and women in it; in fact, there is little else, but at least its "vice" is youthfully exuberant and open, and not of the sordidly introspective kind.

The American slang is more accentuated than in Mr. Springs's earlier books, and this is hardly likely to help it over here, but if a book is desired to relieve a long railway journey, then this might well be chosen.

Some passages are good; for example:—"Now that we've got peace, I find that my exuberant spirits were due to the war. . . . I was sure that I was going to get killed, and there was nothing else to worry about. . . . Now I've lost my nerve. I can't tell the whole world to go to hell any longer. I'm little, insignificant, and scared, and I guess I need Agnes." This was so very often true; this also:—"We had D.H.6's up at Stamford, commonly known as the 'clutching hand.' I can't describe a Six, so I won't even try. . . . a magazine up with me to read while my pupils skidded about the sky. The Sixes wouldn't stall and they wouldn't spin, and they had a high speed around fifty-five. After my pupils saw I wasn't going to help them, they'd brace up like a first soloist and teach themselves to fly."

One can't admire the post-war American life as here depicted, but no doubt we ought to make due allowance for our Cousins, as Prohibition seems a more prolific source of evil than did ever money.

Don't miss Chapter XV; there's a good plot for a film there.

THE German "aviary" is very different. It is a collection of short histories of many of Germany's well-known pilots told by one "Vigilant."

Most of them are well told and informative, and it is evident that the author has learnt up his subject pretty thoroughly. The pity of it is that he did not learn a little more about aviation and flying in general. If he had done so, he would have avoided many small points which will irritate most flying people. . . . Senor Juan de la Cierva did not *fit a bus* with an autogiro! . . . It would seem more natural to have translated the German text completely than to say that "the machine was filled with a fresh supply of *benzin*"! . . .

Much of the early part of the book tells us about the birth and growth of the Jagdstaffel system. Boelcke's history and the part he played in this growth is well worth reading, particularly so as he was a thoroughly well-liked sportsman whose methods were a very favourable contrast to the cold-blooded efficiency of one other who eventually used for his own benefit the Jagdstaffel of which Boelcke was the originator. Boelcke was far more human than Richthofen, and it was all the more ironical and tragic, therefore, that he should lose his life through a collision in the air with one of his own pupils.

One very pleasing feature of the book is the way it takes you to many of the lesser-known war areas. Thus we get tales of the German pilots from Tsingtao, Galicia, Przemsyl, Palestine and the Ægean Sea, as well as from the Western Front. Pilots in these areas were not lauded like those nearer home, but their affairs were none the less interesting.

"Vigilant" has a breezy style which may not suit all readers, but at least it does not allow of the text becoming dry and dull like the fare served up by so many historical writers.

More about Gliding

DISTINCTLY above the average American book on the subject is *Gliding and Soaring*. There is very little redundant material in it, and little left out which anyone interested in gliding wishes to know.

Particularly praiseworthy is the general make-up. It is divided into six parts, each part having its own small introduction, with an index of the chapters contained.

The quality of the information contained is good, although perhaps it errs on the terse side, but it has the merit that it is divided into paragraphs so that anything in particular may readily be seen.

The part headings are:—Introduction, Ground Instruction, Gliding, Soaring, Construction and Experimentation. From these it will be seen that the range is fairly extensive, and together with the wealth of illustrations should form an excellent gliding encyclopædia.

A Review of the Past

THE *Pageant of Transport through the Ages* is a valuable book, because transport has always been, and will always be, *the* measure of civilisation. Advance in the rapid delivery of goods and mail will automatically put any country ahead of another whose transport services are not so efficient. Adequacy of transport, be it in the town and cities or be it between the units of an empire, is undoubtedly the paramount problem which every country is called upon to face throughout its existence, and, if it fails to solve that problem, then it ceases to exist, at least as far as the outside world is concerned. In war or peace, for peace nowadays, as it always has been, is merely a commercial war, transport services are the crux of the battle.

That being so, any book which gives its readers knowledge on the subject of transport must be treated with respect. Mr. Boulton's volume is somewhat unique in this respect, for he deals with all forms of transport and traces their development from the earliest days. It cannot be said that the book is anything but fair to each separate method of transport, for the chapter arrangement shows that all methods are treated equally and given an adequate hearing.

"Each has its own uses," seems very rightly to be the thought dominating the author throughout, with the result that one is able to get a very fair history of each and every method from his book.

A Christmas Present

MANY of those in aviation must be uncles or fathers, and one is often asked by such as these for a suitable book for their nephews or sons as a present.

Just such a one is *Wings Over the World*, and in its appeal is similar to that excellent series of Boys' Aviation books published by John Hamilton, Ltd.

There is a rousing foreword by Capt. Frank Hawks, whose exploits are enough to enthuse any boy. Its contents comprise a series of articles, by different writers, dealing with all phases of aviation in every part of the world, and are, for the most part, breezily written in a style which should appeal to most youths from the age of 14 upwards.

How to Find Your Way

MAJOR OLIVER STEWART is a prolific writer on matters connected with the air, and although he may at times skimp a particular subject, he never fails to make his books readable.

In *Cross-Country Flying* he gives some of his own early experiences of cross-country flying and adapts them to present-day needs. I feel that in his eagerness to treat with every subject pertaining to cross-country flying the author has been somewhat prone to assume in his readers a knowledge which many amateur pilots do not possess. One cannot, for example, think that he desires his explanation of the method by which a compass is swung to be taken word for word as the correct method.

Apart from such points, however, there is a great deal of value in the book which should appeal in particular to the amateur class of pilot who is willing to learn from others' experience. The value is greatly increased by the inclusion of a large number of aerial photographs of aerodromes. These show the aerodrome as it looks to the pilot when he is approaching it, and are a great help in teaching pupils to make good approaches.

Aerial Transport

AIR TRANSPORT OPERATION seems to follow as a natural complement to that admirable handbook on Airports which forms No. 1 of *The Harvard City Planning Studies*, and no one whose job in life is connected with aerial transport in any form can afford to be without it.

Although in many ways it is already out of date and would appear to refer to the conditions as they were in the U.S.A. about the latter end of 1929, that does not greatly detract from its value for operators in other countries, as, in any case, it will have to be shorn of much of its American application before the lessons it contains can be adapted to our needs.

Every phase and problem appertaining to the operation of commercial aircraft is dealt with, but the subject of Air Mail operation receives pride of place throughout. This, again, may be taken as the American view at that time of the value of commercial aircraft, for it is only very recently that air passengers have been catered for to any great extent in that continent.

In keeping with the majority of American literature, the author has sacrificed much in order to be exactingly thorough. In this case, however, he has largely been able to avoid the consequent pitfall of becoming stodgy, and the reader is able to read the book and gain the facts contained—of which there are many valuable ones—without wading through a literary morass to get to them.

"Let's Help." A Collection of Good Causes, by Sir Charles Bright. George Routledge & Sons, Ltd. Price 4s. 6d. net.

Choose Your "Good Cause"

ALTHOUGH only indirectly connected with aviation—by way of the author's associations in this direction in the past—we feel our readers will excuse mention here of Sir Charles Bright's latest book in view of the nature thereof—especially considering the near approach of the season of goodwill to all. *Let's Help* is a book giving an account of many "good causes," their labours and their intentions, which may serve to interest people in their work. It is dedicated, by permission, to the Prince of Wales, on account of His Royal Highness being either President or Patron of so many of these organisations. Sir Charles himself has been actively associated with a number of the good causes dealt with, which include such organisations as The League of Nations Union, The Boys' Brigade, Church Lads' Brigade, Boy Scouts' Association, The Polytechnic, Toc H, British Red Cross Society, Church Army, Dr. Barnardo's Homes, etc. Those of our readers, therefore, who, in spite of these hard times, wish to help some good cause or other, will do well to obtain a copy of this book as a guide to their good intentions.

Correspondence

The Editor does not hold himself responsible for opinions expressed by correspondents. The names and addresses of the writers, not necessarily for publication, must in all cases accompany letters intended for insertion in these columns.

FLYING IN SIAM

[2781] In your last number of FLIGHT (November 27) there appeared an otherwise excellent and readable article on Civil Aviation in Siam but for a slight misunderstanding and an unfair remark, probably due to hasty judgment and sweeping condemnation of independent countries of the Far East.

No one with but the slightest acquaintance with Bangkok would be so bold as to state that the reason why the Pramane Ground—for this is the name of the open space referred to—was not converted into an aerodrome was due to its being used as a military parade ground! This Pramane Ground, like its sisters the London parks and commons, is practically the only open space within the reach of all in Bangkok for games and recreation, although occasionally military parade or Royal cremation is performed there.

Since it would be indeed more than unwise for any foreigner in this country to declare that the reason why Hyde Park is not utilised as an air port is because it is annually used for the Empire Day Demonstration, the same may be said of the remark on the Pramane Ground of Bangkok.

Moreover, to lay a charge of inter-departmental friction at the door of all independent countries of the Far East and to regard that as the usual thing, is rather unjust, since, after all, inter-departmental friction and red tape are not wholly Far Eastern monopoly, and no country can honestly claim absolute immunity. The fact that India and British Malaya are both Eastern, not independent, and, in spite of British Administration, does not convince one that they fare any better in that respect.

S. K. NIMHANMINNE, M.Sc.

Wimbledon Park, S.W.19.
November 28, 1931.

POBJOY ENGINE PARTS

[2782] I have read Mr. A. J. Mollart's letter in your issue of this week, which *now* specifies in detail the amount of work on the Pobjoy cylinders for which our respective firms were responsible, and if this had been made clear in the first instance no correction from me would have been necessary.

He might have mentioned, however, that out of 360 cylinders we did 315 "as a temporary measure."

I must now be content, as probably others are, who have done their best to make a good job of the work entrusted to them by Mr. Pobjoy, to leave Mr. Mollart with all the credit he has taken for his contribution to the success of the Pobjoy engine, for, after reading the last paragraph of his letter, there does not seem to be much left for anyone else.

Walton-on-Thames, Surrey,
November 30, 1931.

A.B.C. MOTORS, LTD.,
T. A. DENNIS.

[*The above must conclude this correspondence.*—ED.]

THE ROYAL AIR FORCE

London Gazette, November 24, 1931.

General Duties Branch

Lt.-Cdr. A. P. Colthurst, R.N., is reattached to R.A.F. as a Flight Lt. with effect from Nov. 8 and with seny. of July 1, 1929; Pilot Officer on probation J. C. Larking is confirmed in rank (Nov. 17); Pilot Officer J. A. Nicholson is promoted to rank of Flying Officer (Oct. 14); Flying Officer A. L. Franks is seconded for service as Aide-de-Camp to the High Commissioner for Iraq (Oct. 30); Flying Officer D. A. L. Campbell is transferred to Reserve, Class C (Oct. 29) (substituted for *Gazette* Nov. 10); Air Commodore A. G. Board, C.M.G., D.S.O., is placed on retired list at his own request (Sept. 10); Flight Lt. J. McBain, D.F.C., is placed on retired list (Nov. 14); Flying Officer W. J. P. Sloan is placed on retired list on account of ill-health (Nov. 20); Lt.-Cdr. G. R. F. T. Cooper, R.N., Flying Officer, R.A.F., relinquishes his temp. comm. on retirement from Royal Navy (Sept. 8).

Stores Branch

The follg. are placed on retired list:—Squadron Leader V. J. B. Jacobs (Nov. 19); Flight Lt. E. V. Bashford (Nov. 23).

ROYAL AIR FORCE RESERVE

General Duties Branch

I. R. Parker is granted a comm. in Class A.A. (i) as a Pilot Officer on probation (Oct. 9); Pilot Officer C. A. S. Parker (A.A.F) is granted a comm. in Class C as Pilot Officer (Sept. 16, 1930); Flying Officer A. F. Waghorn is transferred from Class AA (ii) to Class C (Nov. 30, 1930); Squadron Leader R. H. Mayo, O.B.E., resigns his comm. and is permitted to retain his rank (Sept. 22); Flying Officer A. M. Alexander, A.F.C., relinquishes his comm. on account of ill-health and is permitted to retain his rank (Nov. 25); Pilot Officer on probation O. P. E. Reed relinquishes his comm. on account of ill-health (Sept. 29). The follg. Flying Officers relinquish their commns. on completion of service:—G. Terrell (Nov. 27, 1930); J. C. Walker (Aug. 9); I. J. Sankey (Aug. 14); G. P. W. Chandler (Aug. 23); L. F. Cubitt (Sept. 30).

The follg. relinquish their commns. on completion of service and are permitted to retain their rank:—Flight-Lieutenant.—A. W. Clemson, O.B.E., D.S.C. (Aug. 18). Flying Officers.—A. A. B. Chipper (July 20); A. E. de M. Jarvis, D.F.C. (Aug. 28); W. B. Kelly (Aug. 28); F. G. M. Sparks (Sept. 11) G. H. Bittles (Sept. 12); C. W. S. Chalmers (Sept. 20); R. H. Rose (Sept. 20) M. R. Banks (Oct. 16).

Gazette Oct. 27 concerning Flying Officer F. J. Phillips is cancelled.

SPECIAL RESERVE

General Duties Branch

The follg. are granted commns. as Pilot Officers on probation (Oct. 18):—W. K. Le May, W. B. Wilson. Pilot Officer W. H. Armstrong is promoted to rank of Flying Officer (Sept. 13).

AUXILIARY AIR FORCE

General Duties Branch

No. 602 (CITY OF GLASGOW) (BOMBER) SQUADRON. Pilot Officer C. A. S. Parker resigns his commn. on appointment to a commn. in Reserve of Air Force Officers (Sept. 16, 1930).

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the Royal Air Force are notified:—

General Duties Branch

Group Captain V. O. Rees, O.B.E., to No. 1 Air Defence Group H.Q. and attached to the Air Ministry (D. of E.), 14.11.31.

Wing Commander R. M. Drummond, D.S.O., O.B.E., M.C., to Station H.Q., Tangmere, pending taking over command, 22.11.31.

Squadron Leaders: J. B. Cole-Hamilton, to School of Army Co-operation, Old Sarum, 16.11.31. J. H. Butler to No. 2 Flying Training School, Digby. 1.10.31. R. Harrison, D.F.C., to Central Flying School, Wittering, 14.11.31.

Flight Lieutenants: N. V. Wrigley to H.M.S. *Furious*, 9.11.31. B. H. C. Russell, to H.Q., Fighting Area, Uxbridge, 16.11.31. The Earl of Bandon to No. 216 Sqdn., Heliopolis, Egypt, 7.11.31. P. de C. Festing-Smith to No. 45 Sqdn., Helwan, Egypt, 1.11.31. W. J. Millen, to No. 16 Sqdn., Old Sarum, 19.11.31. A. W. Franklyn, M.C., to Armament and Gunnery School, Eastchurch, 1.11.31.

Flying Officers: A. M. N. David, to H.M.S. *Furious*, 9.11.31. C. E. St. J. Beamish to R.A.F. Depot, Uxbridge, 6.10.31. E. G. Banham, to No. 24 Sqdn., Northolt, 16.11.31. G. S. Barrett, to No. 501 Sqdn., Bristol, 11.11.31. J. J. Owen, to No. 9 Sqdn., Boscombe Down, 15.11.31. R. W. Wallace, to Station H.Q., Heliopolis, Egypt, 3.11.31. R. Macfarlan, to R.A.F. Depot, Uxbridge, on appointment to a short service commn. 18.11.31. M. G. Sedorski, to Station H.Q., Manston, 24.11.31. J. L. C. Banks, to No. 9 Sqdn., Boscombe Down, 23.11.31. G. E. B. Stoney, to No. 18 Sqdn., Upper Heyford, 23.11.31.

Pilot Officers: M. Sorsbie, to N. 216 Sqdn., Heliopolis, Egypt, 2.11.31. F. B. Bristow, to No. 7 Sqdn., Worthy Down, 17.11.31. C. C. McMullen, to No. 3 Flying Training School, Grantham, 17.11.31.

Stores Branch.

Squadron Leader J. H. Dale, to R.A.F. Depot, Uxbridge, 23.10.31.

Flight Lieutenants: F. W. Taylor to H.M.S. *Furious*, 2.11.31. J. R. Brown, to School of Army Co-operation, Old Sarum, 30.11.31. V. H. B. Roth, to No. 2 Stores (Ammunition) Depot, Altrincham, 26.11.31. C. J. Nobbs, to No. 45 Sqdn., Helwan, Egypt, 9.11.31.

Accountant Branch

Flying Officer R. Cassels to Station H.Q., Hornchurch, 26.11.31.
Flying Officer E. Smith, to No. 1 Air Defence Group, H.Q., 1.11.31.

Medical Branch

Flight Lieutenants: L. P. McCullagh, to R.A.F. Hospital, Cranwell, 16.11.31; N. M. Jerram, to R.A.F. Depot, Uxbridge, 16.10.31. G. J. Hanly, to No. 1 School of Technical Training (Apprentices), Halton, 3.11.31.

Flying Officers: V. H. Tompkins, to Special Duty List, on appointment to a short service commn., and seconded to a house appointment at the General Infirmary, Leeds, 1.11.31. O. M. Fraser, to R.A.F. Pathological Lab., Halton, 27.11.31. E. A. Gudgeon, to Central Flying School, Wittering, 17.11.31.

Dental Branch

Flying Officer J. E. Tyrrell, to Station H.Q., Andover, 17.11.31.

NAVAL APPOINTMENTS

The following appointments have been made by the Admiralty:—

Lieut.-Commdr. A. M. Rundle (Flt. Lieut., R.A.F.), to *Glorious*.
Lieutenants (F/O., R.A.F.).—C. P. Wade and P. L. H. D. Irven. to *Glorious*.

Promotions

Sub-Lieuts. (F/O., R.A.F.).—G. N. Torry, D.C.V. Pelly, V. D. Gask, and H. P. Bramwell, to rank of Lieut. (seny. Nov. 16).

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Attachment of Foreign Officers to R.A.F. Units for Training Purposes

LIEUTENANT CLASON, of the Norwegian Air Force, who was attached to the School of Photography, South Farnborough, on October 19, proceeded to the School of Army Co-operation, Old Sarum, Wiltshire, on November 16. Lieut. Clason then proceeded, on November 23, to No. 4 (Army Co-operation) Sqdn., South Farnborough, remaining there until December 16.

Air Navigators' Examination. Successful Candidates

THE Air Ministry announces:—The following candidates, whose names are given in alphabetical order, have passed the examination for Second-Class Civil Air Navigators' Licences, held at the Air Ministry, the Royal Air Force Base, Calshot, Heliopolis, and Baghdad, on October 5, 6 and 7, 1931:—Flying Officer A. D. L. Carroll, R.A.F.O.; Mr. R. F. Caspareuths; Lieut.-Commander G. A. Hall, R.A.N.; Sergeant R. A. Harding, R.A.F.; Mr. J. D. Irving; Mr. L. G. Kirchner; Flying Officer J. H. Lindell, R.A.F.; Mr. J. T. Percy; Flying Officer W. H. Phillips, R.A.F.C.; Mr. A. C. L. Rendel; Sergeant J. D. Rose, R.A.F.; Flying Officer D. T. Saville, R.A.F.; Mr. E. R. B. White.

The subjects of the examination were:—International Legislation; Form of the Earth, Maps and Charts; Meteorology; Dead Reckoning and Direction Finding W/T Navigation; Magnetism and Compasses; Visual Signalling (Morse Flashing, Semaphore and International Procedure).

Twenty-six candidates sat for the examination. To qualify, candidates were required to obtain not less than 70 per cent. of the aggregate marks, with the exception of visual signalling, and not less than 60 per cent. in any one subject excluding visual signalling, in which subject not less than 90 per cent. was required in order to qualify.

The next examination will be held on March 14, 15 and 16, 1932. An examination for First-Class Civil Air Navigators' Licences will also be held, in London only, on March 14, 15, 16 and 17, 1932.

Westland Aircraft Society, Yeovil Branch, R.Ae.S.

THE following is the lecture, etc., syllabus for the session 1931-32 of the above Society:—

Nov. 26.—"The Use of Magnesium Alloy and Electron on Aircraft," by Mr. E. Voss, Production Engineer, Westland Aircraft Works.

Dec. 4.—"Air Photography, its Developments and Applications," by Flt.-Lt. A. J. Elliott, R.A.F.

Dec. 10.—"The Gliding Movement in England and Germany," by J. R. Ashwell-Cooke, Esq., Chairman of the London Gliding Club.

Dec. 17.—"Twelve Years Progress in Commercial Aviation," by Capt. G. F. Olley, of Imperial Airways.

CHRISTMAS INTERVAL

Jan. 7.—"Ten Years Progress (?) in Aeronautics," by Capt. J. Laurence Pritchard, Hon. F.R.Ae.S., Sec., R.Ae.S.

Jan. 9.—Visit to Marconi Wireless Station, Dorchester, by kind permission of Imperial & International Communications, Limited.

Jan. 14.—"Rolls-Royce Schneider Engines," by Mr. Tresilian, of Rolls-Royce, Ltd.

Jan. 21.—"A Visit to South America," by Mr. H. J. Penrose, A.F.R.Ae.S.

Jan. 28.—"The Autogiro," with Film Display," by Senor J. de la Cierva.

Feb. 4.—"Engine Maintenance," by Mr. Hodgson, A.I.D.

Feb. 11.—"What Model Tests Teach Us," by Mr. W. Widgery, in charge of Wind Channel, Westland Aircraft Works.

Feb. 18.—"Further Developments in Aircraft Instruments," by Maj. C. J. Stewart, O.B.E., Chief of Instrument Section, R.A.E.

Feb. 25.—"My Survey Flight to Lake Kivu ad Back," by Sir Alan Cobham, K.B.E., A.F.C.

(Special tickets will be issued for this event which will be at the Manor Hotel, at 8 p.m.)

March 3.—"Aluminium and its Uses for Aircraft Industry," by Mr. W. H. Craven, of Aluminium II, Ltd.

March 10.—"The Wapiti in England," by Flt.-Lt. E. A. Healy, R.A.F.

In addition to the above the Society is endeavouring to arrange for "The Wapiti in South Africa," by an officer of the South African Air Force.

Except where otherwise stated, the lectures will be held at the "Three Choughs," at 8 p.m.

AIR POST STAMPS

By DOUGLAS ARMSTRONG

Valuable Air Stamps

The fall in the pound does not appear to have affected adversely the value of the more elusive examples of air post stamps and covers in the open market. The reverse would seem, in fact, to be the case, judging by some of the prices realised under the hammer at Harmer's Bond Street auction rooms on November 16. Especially noteworthy was the sum of £220 paid for a mint and well centred copy of the historic "Hawker" air mail stamp of Newfoundland, which actually constitutes a record for a London auction, although copies have changed hands privately during the current year for a somewhat higher figure. £52 for a "Flown" De Pinedo cover is a substantial advance upon previous auction prices for this interesting item, whilst the £43 realised by a very fine and well centred copy of the Australian "Ross Smith" flight souvenir vignette on the original letter is well up to the average. In the same sale a fine example of the blue "Ile de France" catapult air mail provisional on "flown" cover fetched 10 guineas, and a superb mint copy of the "inverted" error of the 15 kopecs on 1-rouble Russian air post stamp of 1924, £16. A complete set of 22 registered letters carried on the inaugural flights of the second official South African air mail service went to £14, whereas two years back they were going begging! In the face of these realisations, it cannot be claimed that the market in air post stamps and covers is in any way depressed at the present time.

Latest from the Balkans

Bulgaria's new official air post stamps duly materialised on October 27 last, more than a month after they were originally promised. The delay is said to have been due to an offer, happily rejected, by an American stamp syndicate to buy up the entire issue, before ever it was on sale to the public. The set of six values is uniformly printed in a characteristic design representing a woman in national costume receiving a message from a carrier pigeon, with a glimpse of a Bulgar village in the background, in upright rectangular format. Surface printed by the State Printing Office at Sofia, they comprise 1 leva green, 6 L. blue, 12 L. rose, 20 L. deep violet, 30 L. orange, and 50 L. yellow-brown, all of which are available for use over the Trans-European air mail system in the Near East.

About a week later, on November 2, the Roumanian post office introduced a handsome new series of five stamps depicting aircraft of various types flying over typical local scenes, in the general style of the original air stamp issue of 1928, and duly inscribed "Posta Aeriana" at the foot of the designs. These stamps are reproduced by a rotogravure process in the following denominations and colours, viz., 2 lei green, 3 L. rose, 5 L. brown-orange, 10 L. blue-green, and 20 L. violet. Every one of the Balkan States now has its distinctive issue of stamps for aerial postage.

Guatemalan Provisionals

For use in the international air mail service linking Guatemala with Mexico and adjacent countries under the auspices of the Pan-American Airways, Inc., two emergency air mail stamps have lately been provided pending the arrival of a definite series on order from the United States. Of the 15 centavos de quetzal ordinary postage stamp, in blue, with a vignette of the Columbus statue, overprinted "AEREO INTERNACIONAL 1931" in three lines in red, 450,000 copies are said to have been prepared, whilst of the 30 c. de q. green, with a view of the Aurora Park, the total number thus overprinted is stated to be 300,000.

Abyssinia's Air Stamps

The special stamps issued by the Ethiopian Government to celebrate the acquisition of its first aeroplane on August 16, 1929, are turning out to be a most interesting and popular line with aero-philatelists. All sorts of curious and elusive varieties have recently come to light amongst a supply of entire sheets brought home from Abyssinia by a British philatelist, from which it would seem that at least three different handstamps were employed in a variety of colours. As in several instances no more than a single example of a particular misprint has come to light they promise to be rare as well as interesting.

Air Post Publications

The literature of air post collecting is growing apace. Notable additions to the aero-philatelist's reference library during the past month include a highly documentary record of the little-known air and pigeon post flights of New Zealand, with details of their respective stamps and cachets compiled from official sources by the Air Mail Society of New Zealand, published in convenient handbook form at 3s. 6d. At the same time Mr. A. A. Rosenblum, a well-known Australian philatelist, has produced at the same figure an equally comprehensive and informative volume on the subject of Australian Air Posts.

The Paris house of Theodore Champion has published a handy and acceptable supplement to the sixth (1930) edition of its "Catalogue Historique et Descriptif des Timbres de la Poste Aerienne," wherein are listed and priced all novelties in both adhesive stamps and flown covers which have appeared throughout the world within the past twenty months, price 10 fcs. An unfortunate omission is a revised table of prices of those items that have appreciated in value so extensively during the period under review, but among the rarer varieties which are priced for the first time we find the "Columbia" air mail stamp of Newfoundland quoted at Fr. 15,000 unused and Fr. 12,500 used. The U.S.A. "Graf Zeppelin" set of 1930 figure at Fr. 625 unused or used, the 1p.80 of the Argentine "Zeppelin" series at Fr. 1,250 and the Salvador "Bolivar" series at Fr. 200, the four values, which seems sweetly reasonable.

NEW COMPANIES REGISTERED

THE HAW PROPELLER CO. LTD., 3, Laurence Pountney Hill, E.C.4.—Capital, £1,000, in £1 shares. Manufacturers of and dealers in all kinds of aeroplane apparatus and equipment, electrical, mechanical and aeronautical engineers, inventors and designers, etc. Directors: W. E. Prestage, Abbey House, Westminster, S.W.1, accountant. J. Haw, Staaken, Berlin, manufacturer. F. Cremer, Zehlendorf, Berlin, merchant. The company may from time to time increase the capital up to £150,000, without the sanction of a general meeting. Secretary: R. Bennett.

MODEL AIRCRAFT SUPPLIES, LTD.—Capital £300, in £1 shares. Manufacturers of and dealers in models of aeroplanes, seaplanes, airships, balloons, parachutes, gliding machines and autogiros, etc. Directors: H. York, 2, Scutari Road, S.E., C. L. Faudell, 164, New Kent Road, S.E.1, H. W. Neal, 25, Dockhead, S.E.1. Solicitors: B. P. Webster, 20, Hanover Square, W.1.

AERONAUTICAL PATENT SPECIFICATIONS

Abbreviations: Cyl. = cylinder; i.c. = internal combustion; m. = motors. (The numbers in brackets are those under which the Specification will be printed and abridged, etc.).

APPLIED FOR IN 1930

Published December 3, 1931

14,226. R. CHILLINGWORTH. Wings or planes. (360,443.)
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